THE

NATIONAL

QUARTERLY REVIEW.

EDITED BY

EDWARD I. SEARS, LL. D.

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Pulchrum est bene facere reipublicæ, etiam bene dicere haud absurdum est.

NEW YORK:
EDWARD I. SEARS, EDITOR AND PROPRIETOR,
61 BROADWAY.

GENERAL AGENTS:

NEW YORK: AMERICAN NEWS CO., 121 NASSAU STREET. BOSTON: A. WILLIAMS & CO., 100 WASHINGTON STREET. PHILADELPHIA: JAMES K. SIMON, SOUTH SIXTH STREET. LONDON: TRUBNER & CO., 60 PATERNOSTER ROW. PARIS: VICTOR ALEXI, 19 RUE DU MAIL.

1868.

Entered according to Act of Congress, in the year 1868, by EDWARD I. SEARS, in the Clerk's Office of the District Court of the United States for the Southern District of New York.

STEINWAY & SONS

TRIUMPHANT

AT THE

UNIVERSAL EXPOSITION,

PARIS, 1867.

STEINWAY & SONS

Have been awarded the

FIRST GRAND GOLD MEDAL,

For American Pianos in all Three Styles Exhibited, viz., Grand, Square, and Upright; this Medal being DISTINCTLY CLASSIFIED FIRST IN ORDER OF MERIT, and placed at the head of the List of all Exhibitors, in proof of which the following

OFFICIAL CERTIFICATE

of the President and Members of the International Jury on Musical Instruments (Class X) is subjoined:

"I certify that the FIRST GOLD MEDAL for American Pianos has been unanimously awarded to Messrs. STEINWAY by the Jury of the International Exhibition. First on the List in Class X.

"MILINET, President of International Jury.

GEORGES KASTNER,
AMBROISE THOMAS,
ED. HANSLICK,
F. E. GEVAERT,
J. SCHEIDMEYER,
} Members of the International Jury."

This unanimous decision of the International Class Jury, *indorsed* by the Supreme Group Jury, and *affirmed* by the Imperial Commission, being *the final verdict* of the *only tribunal* determining the rank of the awards at the Exposition, places *The Steinway Pianos* at the head of all others, in competition with over **Four Hundred Pianos** entered by the most celebrated European and American manufacturers.

DEVLIN & CO.

EXTENSIVE

Clothing Houses,

Broadway, cor. of Grand St.,

AND

Broadway, cor. of Warren St.,

NEW YORK,

COMPRISING ALL BRANCHES OF THE BUSINESS AS REPRESENTED IN THE

Custom and Ready-Made Departments

OF

MEN'S, BOYS' AND CHILDREN'S

CLOTHING.

SHIRTS

Of the Celebrated American Yoke Pattern,

WITH

Gentlemen's Furnishing Goods

OF EVERY DESCRIPTION.

WE HAVE ALSO

A SPECIAL DEPARTMENT

FOR GETTING UP IN THE BEST MANNER AND BY REGULATION ALL KINDS OF

Military, Naval, Clerical,
Livery, Diplomatic & Court Dresses.

DEVLIN & CO.

KNICKERBOCKER

Life Insurance Company,

OF THE

CITY OF NEW YORK.

ERASTUS LYMAN, *President.* GEORGE F. SNIFFEN, *Secretary.*

Assets nearly - - - - - - - - -	$3,500,000
Annual Income for 1867 - - - - - -	2,050,000
Policies issued in 1867—10,283.	
Total Amount issued, over - - - - -	$50,000,000

POLICIES ISSUED FROM $1,000 TO $25,000

On a Single Life.

Every Desirable Form of Policy Issued.

New and Original Features Introduced by this Company in 1866.

NO RESTRICTIONS IN POLICIES AS TO TRAVEL OR RESIDENCE IN ANY PART OF THE CIVILIZED SETTLEMENTS OF THE UNITED STATES.

FREE PERMITS TO EUROPE.

No Extra Charge for Army and Navy Officers.

NO EXTRA CHARGE FOR CAPTAINS AND OFFICERS OF FIRST-CLASS STEAMSHIPS AND SAILING VESSELS SAILING FROM PORTS OF THE UNITED STATES AND EUROPE.

No Extra Charge for Railroad Conductors, &c.,

AND MANY OTHER ADVANTAGES NOT OFFERED OR ALLOWED BY OTHER COMPANIES.

APPROVED SCHOOL BOOKS,

PUBLISHED BY

E. H. BUTLER & CO.,

No. 137 South Fourth Street, Philadelphia, Pa.

MITCHELL'S NEW SCHOOL GEOGRAPHIES.

Mitchell's First Lessons in Geography. For young children. An introduction to the Author's Primary Geography. With Maps and Engravings.

Mitchell's New Primary Geography. Illustrated by 20 Colored Maps and 100 Engravings. Designed as an introduction to the New Intermediate Geography.

Mitchell's New Intermediate Geography. For the use of Schools and Academies. Illustrated by 23 Copper-Plate Maps and numerous Engravings.

Mitchell's New School Geography and Atlas. A System of Modern Geography—Physical, Political, and Descriptive; accompanied by a new Atlas of 44 Copper-Plate Maps, and Illustrated by 200 Engravings.

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Mitchell's New Ancient Geography. An entirely new work, elegantly illustrated.

Mitchell's School Geographies.

OLD SERIES. REVISED TO DATE.

Mitchell's Primary Geography.
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Goodrich's School Histories.

ILLUSTRATED BY NUMEROUS ENGRAVINGS.

Goodrich's American Child's Pictorial History of the United States.

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Goodrich's Pictorial History of England.

Goodrich's Pictorial History of Rome.
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Goodrich's Parley's Common School History of the World.
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Bingham's English Grammar. For the use of Schools and Academies. With copious parsing exercises. By Wm. Bingham, A. M., Superintendent of the Bingham School.

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Bingham's Cæsar. Cæsar's Commentaries on the Gallic War. With critical and explanatory notes, vocabulary, and a new Map of Gaul. By William Bingham, A. M.

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Hart's English Grammar. A Grammar of the English Language. By John S. Hart, LL.D.

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Hows' Primary Ladies' Reader. A choice and varied Collection of Prose and Poetry, adapted to the capacities of Young Children. By John W. S. Hows, Professor of Elocution.

Hows' Junior Ladies' Reader.
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Hows' Ladies' Book of Readings and Recitations.

MARTINDALE'S SERIES OF SPELLERS.

The Primary Speller. For Young Children. Designed as an Introduction to the Author's Common-School Speller. By Joseph C. Martindale, Principal of the Madison Grammar School, Phila.

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Stockhardt's Chemistry. The Principles of Chemistry, illustrated by simple experiments. By Dr. Julius Adolph Stockhardt, Professor in the Royal Academy of Agriculture at Tharand. Translated by Prof. C. H. Pierce, of Harvard College.

Tenney's Geology. Geology for Teachers, Classes and Private Students. By Sanborn Tenney, A.M., Professor of Natural History in Vassar Female College. Illustrated with 200 Engravings.

Teachers and Boards of Education are respectfully invited to address the Publishers, for further information regarding these Books, all of which are eminently suitable for the school-room.

SEVENTEENTH ANNUAL REPORT

OF THE

Manhattan Life Insurance Company,

OF NEW YORK,

Nos. 156 and 158 Broadway,

JANUARY 1, 1868.

RECEIPTS DURING THE YEAR 1867.

For Premiums, Extra Premiums, &c.	$1,694,995 14	
For Interest and Rents	242,268 91	
For Interest and Rents accrued	42,096 13	
		$1,979,360 18

DISBURSEMENTS.

Paid Claims by death on Policies and Bonus, and Payment of Annuities	$400,181 75	
Paid Expenses, Salaries, Taxes, Revenue Stamps, Medical Examiner's Fees, Commission, &c.	257,725 32	
Paid Dividends, Re-Insurance, Purchased Policies and Bonus, Interest on Dividends, &c.	295,697 60	
		$953,604 67

ASSETS.

Cash in Bank and on hand	$ 53,016 07	
Bonds and Mortgages	880,255 00	
Loans on Policies in force	1,707,428 42	
[The actuarial estimates of the value of the Policies which secure these Notes is about $2,101,500.]		
United States and New York State Stocks	719,753 20	
Quarterly and Semi-annual premiums deferred, and Premiums and Interest in course of collection and transmission	596,799 63	
Temporary Loans on Stocks and Bonds	380,425 00	
[Market value of the Securities, $489,567 00.]		
Interest accrued to date, and all other property	52,096 63	
		$4,391,773 45

ADVANTAGES TO INSURERS.

Smallest Ratio of Mortality.
Expenses less than any Cash Company.
Liberal Modes of payment of Premiums.
Insurers receive the largest bonus ever given.
Dividends made Annually on all Participating Policies.
No claims Unpaid.
All kinds of Non-Forfeiting Life and Endowment Policies issued.
Policies incontestible.
All Endowment Policies and the Non-Forfeiting Life Policies Non-Forfeitable after one Payment.

The following are the examples of the operations of the last dividend:

POLICIES ISSUED IN 1863, ONLY FOUR YEARS AGO.

Age at Issue.	Amount Insured.	Premium Paid.	Added to Policy.	Total Amount of Policy
40	$ 10,000	$ 1,280	$ 3,572	$ 13,572
35	8,000	1,092	2,348	10,848
30	7,500	708	2,703	10,208
25	7,000	571	2,505	9,505

This is an entirely new plan, giving insurers the largest return ever made by any Company in the same period.

HENRY STOKES, President.

C. Y. WEMPLE, Vice-President. **J. L. HALSEY, Secretary.**
S. N. STEBBINS, Actuary. **H. Y. WEMPLE, Ass't Secretary.**

UNIVERSITY OF THE CITY OF NEW YORK.

THE EXERCISES WILL BE RESUMED AS FOLLOWS:

IN THE SCHOOL OF ART,

September 4.

PREPARATORY SCHOOL,

September 11.

IN THE

DEPARTMENT OF SCIENCE AND LETTERS

AND

SCHOOL OF CIVIL ENGINEERING,

September 20.

THE SCHOOL OF LAW,

October 2.

THE SCHOOL OF ANALYTICAL AND PRACTICAL CHEMISTRY,

AND THE

SCHOOL OF MEDICINE,

October 17.

Examinations for Admission to the Department of Science and Letters will take place in the Council Room on TUESDAY, September 19, at 9½, A. M.

For Circulars, enquire at the University, Washington square.

ISAAC FERRIS,
Chancellor.

September, 1868.

PHŒNIX

Mutual Life Insurance Company,

OF

HARTFORD, CONN.

Dividends paid in 1865	50 per cent.
Dividends paid in 1866	50 per cent.
Dividends paid in 1867	50 per cent.
Dividends being paid in 1868	50 per cent.

The "PHŒNIX MUTUAL LIFE INSURANCE COMPANY" invites attention to the following plans peculiar to itself :—

1st.—All the advantages of an all cash and half note company.

2d.—If a party insures to-day for $5,000, and pays one half cash and one half note (on any table), and should die to-morrow, next week, next month, or next year, the full amount of the policy is paid—$5,000—and *no deductions of Note*. All notes returned as dividends, and never but four notes on any table. If the payment is made *all cash*, the assured receives *in cash* the amount, $5,000, with dividends—*cash added*.

3d.—No restriction on employment.

4th.—The insured are permitted to travel or reside in any part of the United States, Europe, and the southern portion of South America, during any and all seasons of the year, free of charge. This has never before been offered by any Company of its age without an extra charge varying from $10 to $50 for every thousand dollars insured.

5th.—Dividends in the Phœnix have been, are now, 50 per cent.

6th.—The dividend is 50 per-cent. on all its tables. If the annual premium is $100, the dividend is $50.

7th.—It usually pays its losses in the State in ten days from proof of claim.

8th.—All its policies are non-forfeiting; thereby no possible chance of loss to the insured.

9th.—Ordinary life policies non-forfeiting after three payments, while the policy is in force for the full amount of *even dollars of premiums paid*, besides many other great advantages. The Phœnix has paid to widows and orphans over $525,000, and never contested a single claim; and has over $2,250,000 safely secured for like purposes.

10th.—Its losses have been met by the annual interest received alone, and a surplus of interest left over to swell the general fund belonging to the insured.

11th.—Its rates of assurance are as cheap as any Company doing a SAFE business.

12th.—IT WILL NOT INSURE AN UNSOUND LIFE.

Number of Policies issued during the year ending Dec. 31, 1867.....	5,811
Amount insured during the year.....	$15,250,910
Total amount of losses paid.....	530,500

EDSON FESSENDEN, *President.*

JAMES F. BURNS, *Secretary.*

MANHATTAN COLLEGE,

(CHRISTIAN BROTHERS,)

NEW YORK CITY.

This Institution, incorporated and empowered to confer Degrees by the Regents of the University of the State of New York, offers many advantages to further the moral, intellectual, and physical development of students. The situation of the College is not surpassed in landscape beauty, or salubrity, by that of any similar institution in the country. It occupies an elevated position on the east bank of the Hudson, about eight miles from the City Hall.

TERMS.

Board, Washing, and Tuition, per Session of ten months,	**$300**
Entrance Fee,	**10**
Graduation Fee,	**10**
Vacation at College,	**40**

German, Spanish, Drawing, Music, and use of apparatus in the study of Chemistry and Natural Philosophy, charged extra. School books at current prices.

No students received for a shorter period than one term of five months —no deductions made when withdrawn during the term. The pocket-money of the student is deposited with the treasurer.

Payment of half session of five months in advance.

The sessions commence on the first Monday in September, and end about the 3d of July.

A public examination of the students is held at the end of the session, and gentlemen are invited to examine them then, and also during the class hours of term time.

☞ FOR PARTICULARS SEE CATALOGUE.

PHYSICIAN'S FEE, - - - - - - $10.

THE

National Life Insurance Company

OF

NEW YORK,

No. 212 BROADWAY,

CORNER OF FULTON STREET. (KNOX BUILDING.)

ASSETS JANUARY 1, 1868, - - - - $292,388 41.

Dividend to Policy-holders 50 per cent.

SPECIAL ADVANTAGES

OFFERED TO

Insurers in the National Life Insurance Company.

All Policies non-forfeiting after two years.
All Policies incontestible after five years.
Note taken for one-half the annual premium.
No interest charged on semi-annual or quarterly premiums.
Thirty days' grace allowed in payment of premiums.

BOARD OF DIRECTORS:

S. M. BEARD,
S. C. HERRING,
HENRY CLEWS,
J. A. ISELIN,
S. T. TRUSLOW,
ROBERT CROWLEY,
WM. E. PRINCE,
T. B. VAN BUREN,
ELI BEARD,
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A. WRIGHT, M. D.,
WATSON SANFORD,
W. H. WORTHINGTON
O. M. BEACH.

OFFICERS:

EDWARD A. JONES, President.

JONATHAN O. HALSEY, Vice-President.

JOHN A. MORTIMORE, Secretary.

JOHN C. DIMMICK, *Attorney and Counsel.*

HIRAM B. WHITE, M. D., *Medical Examiner.*

Residence, No. 5 Green Avenue, near Fulton Avenue, Brooklyn.—At office daily from 2 to 3 o'clock, P. M.

SEMINARY OF OUR LADY OF ANGELS,

Suspension Bridge, Niagara Co., N. Y.

CONDUCTED BY THE

PRIESTS OF THE CONGREGATION OF THE MISSION.

This institution, situated about two miles from Niagara City, or Suspension Bridge, and four miles from the Falls of Niagara, overlooks the famous Niagara River, and commands an extensive view of its sublime and varied scenery. With grandeur and beauty of location, it also enjoys the great advantage of salubrity of climate. The Seminary possesses a large farm, a considerable portion of which is allotted to the Students for recreation grounds.

By an Act of the Legislature of the 20th of April, 1863, it was chartered with powers to confer degrees.

THE COURSE OF STUDIES

Pursued by the Seminary is Ecclesiastical, Classical, Scientific, and Commercial, embracing the following:

GRADUATING DEPARTMENT.

Spelling and Defining; Reading, Writing, Geography, Use of Globes, English Grammar, Rhetoric, Composition, History, and Declamation; Arithmetic, Bookkeeping, Algebra, Geometry, Conic Sections, Trigonometry, Surveying, Analytical Geometry, Calculus, Natural Philosophy, Astronomy, Chemistry, and Moral Philosophy; Latin, Greek, German and French; the two latter optional.

THEOLOGICAL DEPARTMENT.

Dogmatic and Moral Theology, Hermeneutics, Canon Law, Scripture, Sacred Rhetoric, and Ecclesiastical History.

TERMS.

Board, Tuition, Washing, and Mending of things washed	$150 00
Bedding, if furnished by the Institution	12 00
Vacation, when spent at the Seminary	40 00
Piano, and use of instrument, per annum	60 00
Organ	60 00
Violin	40 00
Flute	40 00
Clarionet	40 00

Clothing, Books, and Stationery form an extra charge. They will not be furnished by the Institution unless a sufficient sum be deposited with the Treasurer.

As sickness is of rare occurrence, the Students will be individually responsible for medical attendance, and medicines furnished them.

Payments must be made half-yearly in advance; if not, the Student will be liable to be sent home.

All letters to and from the Students will be subject to the inspection of the President.

No student will be received unless well recommended by his respected Bishop or Pastor: but if he be from any other literary institution, he must have satisfactory letters from the President of said Institution.

No deduction will be made for removal within the half year, unless for dismissal or protracted illness.

The scholastic year commences on the first Monday of September, and terminates on the last Wednesday of June.

ROBERT E. V. RICE, C. M.,
President.

ÆTNA

Life Insurance Company.

CAPITAL STOCK AND SURPLUS

OVER

$8,000,000.

Officers and Directors:

E. A. Bulkeley, Leverett Brainard,
Austin Dunham, Robert E. Day,
Gurdon W. Russell, Daniel W. Norton,
Timothy M. Allyn, Thomas K. Brace,
Appleton R. Hillyer.

E. A. BULKELEY, PRESIDENT.
AUSTIN DUNHAM, VICE-PRESIDENT.
T. O. ENDERS, SECRETARY.

GURDON W. RUSSELL, M. D.,
Medical Examiner and Consulting Physician.

Pamphlets containing rates of premium and information on the subject of Life Insurance may be obtained at the office of the Company or from any of its Agents.

Agencies of the Company can be obtained by applying at the office either personally or by letter.

COLLEGE

OF THE

Christian Brothers,

ST. LOUIS, MO., 1865-66.

This Literary Institution possesses all the advantages of an agreeable and healthy location, easy of access, being situated on a rising ground, a little southwest of the Pacific Railroad terminus, in the city of St. Louis, Missouri. It was founded in 1851 by the Brothers of the Christian Schools, incorporated in 1855 by the State Legislature, and empowered to confer degrees and academical honors. However favorable the auspices under which it commenced its literary career, its progress since has surpassed all anticipation. Growing equally in public confidence and in the number of students, it has gone on extending its reputation. Repeated additions have been made to the original buildings. The number of Students received within the last year amounted to more than 600, and many applicants were refused admission for want of room.

Every possible attention is paid to whatever can contribute to the health and happiness of its inmates—ventilation, cleanliness, spacious halls, dormitoires refectory, recreation halls for cold or damp weather, &c., &c.

The various arts and sciences usually taught in colleges find here an appropriate place in a system of education established by experience, conducted on the most approved plan, and with a devotedness commensurate with the greatness of the work engaged in. By reason of the great number of classes, a thorough gradation for all capacities and acquirements has been attained, and the frequent examinations and promotions beget emulation, the soul of advancement, making labor a pleasure, and success certainty.

The course of instruction pursued in the Academy is divided into three departments: the primary, the intermediate, and the collegiate. There is, besides, an exclusively commercial course, offering rare advantages to young gentlemen who intend to make business their profession. It is divided into three classes, in which the chief place is given to instruction in Book-keeping, Arithmetic, Geography, and History, Business Forms, and Correspondence, Epistolary Composition, Penmanship, &c., with Lectures on Commercial Law, Political Economy, &c. Diplomas can be obtained in the commercial department by such as merit that distinction.

The session commences on the last Monday in August, and ends about the 3d of July, with an annual public examination, a distribution of premiums, and the conferring of degrees and academical honors.

On the completion of the course the degree of A. B. is conferred upon such students as, on examination, are found worthy of that distinction. The degree of A. M. can be obtained by graduates in the first degree after two years devoted to some scientific or literary pursuit, their moral character remaining unexceptionable.

The government is a union of mildness and firmness, energy, and kindness, a blending of paternal solicitude with fraternal sympathy; the results of which are contentment, good order, and happiness. The morals and general deportment of the students are constantly watched over; the Brothers preside at their recreations, and their comfort and personal habits receive every attention.

TERMS.

Entrance Fee	$8 00
Board and Tuition, per session	250 00
Washing	20 00
Physician's Fee	8 00
For Half-Boarders	100 00
For Day Scholars	60 00
In the Senior Classes	40 00
Vacation at the Institution	40 00

Music, Drawing, and the use of apparatus in the study of Chemistry and Natural Philosophy form extra charges.

N. B.—Payments semi-annually, and invariably in advance.

No deductions for absence, except in case of protracted illness or dismissal.

☞ No extra charges for the study of the German, French, and Spanish languages.

THE MUTUAL BENEFIT
Life Insurance Company,
NEWARK, N. J.

ORGANIZED 1845.

CHARTER PERPETUAL.

Lewis C. Grover, *President.*
Benj. C. Miller, *Vice-President.*
Alex. H. Johnson, *Cashier.*
Edward A. Strong, *Secretary.*
Amzi Dodd, *Mathematician.*

Assets over $15,000,000.

Paid claims by death in 1867,	$825,419
Paid Dividends in 1867,	644,891
Paid on lives of deceased members since organization,	5,970,844
Paid Dividends to members, as above, over	6,000,000
Total Receipts in 1867,	4,939,892
No. of Polices in force Jan'y 1, 1868, 29,362.	
Insuring,	104,516,845

This Company continues to issue all the various kinds of Policies at the lowest Rates consistent with security.

DIRECTORS.

Lewis C. Grover,	A. S. Snelling,	John R. Weeks.	Josiah O. Low,
Henry McFarlan,	Randall H. Green,	Nehemiah Perry,	Joseph A. Halsey,
Charles S. Mackney,	I. H. Frothingham,	Edward A. Strong,	Benj. C. Miller.

New York Office, No. 137 BROADWAY.
SAMUEL H. LLOYD, Agent.
Hours for Medical Examinations at the office, daily from 11 A.M. till half-past 2 P.M.

Charter Oak Life Insurance Co.,
HARTFORD, CONN.

Assets, April, 1868, - - - - - *$4,115,932.57*
Annual Income, - - - - - *over 2,500,000.00*

ANNUAL DIVIDENDS. DIVIDENDS GUARANTEED.

Policies Issued, over 31,000. Losses Paid, $1,449,696.52.
Dividends Paid, over $1,109,418.89.

Those intending to obtain Insurance, are urged to consult our Agents, and examine the merits of this Company.

JAMES C. WALKLEY, President.	S. J. BESTOR, Assistant Secretary.
NOYES S. PALMER, Vice President.	HENRY M. PALMER, Supt. of Agencies.
S. H. WHITE, Secretary.	L. W. MEECH, Mathematician.

J. T. POMPILLY, General Agent for New York City and Brooklyn.
Office, 151 Broadway, New York.

MERCANTILE MUTUAL

(MARINE)

INSURANCE COMPANY,

No. 35 Wall Street, New York.

ASSETS, - - - - $1,464,419

This Company takes Marine and Inland Navigation Risks on Merchandise, Freight, and Hulls of Vessels. On the payment of Premiums, a Rebate or Discount on the current rates is made *in cash* as an equivalent for the Scrip Dividends of a Mutual Company. The amount of such Rebate, being fixed according to the character of the business, gives to Dealers a more just apportionment of profits than by the mutual system; and, being *made in cash*, on payment of the premium is more than equivalent to the *cash value* of the average Scrip Dividends of Mutual Companies.

Policies issued making loss payable in Gold in this city, or in Sterling at the Office of the Company's Bankers in Liverpool, if desired.

TRUSTEES.

JAMES FREELAND,
SAMUEL WILLETTS,
ROBERT L. TAYLOR,
WILLIAM T. FROST,
WILLIAM WATT,
HENRY EYRE,
CORNELIUS GRINNELL,
JOSEPH SLAGG,
JAS. D. FISH,
GEO. W. HENNINGS,
A. FOSTER HIGGINS,
FRANCIS HATHAWAY,
A. WILLIAM HEYE,
AARON L. REID,
ELLWOOD WALTER,
D. COLDEN MURRAY,
E. HAYDOCK WHITE,
N. L. McCREADY,
DANIEL T. WILLETTS,
L. EDGARTON,
HENRY R. KUNHARDT,
JOHN S. WILLIAMS,
WILLIAM NELSON, Jr.,
CHARLES DIMON,
HAROLD DOLLNER,
PAUL N. SPOFFORD.

ELLWOOD WALTER, President. **CHAS. NEWCOMB, Vice-President.**

C. J. DESPARD, Secretary.

THIRTY-THIRD DIVIDEND.

SAFEST AND CHEAPEST SYSTEM OF INSURANCE.

STATEMENT OF THE

Washington Insurance Company,

172 BROADWAY, cor. of Maiden Lane,

New York, February 7, 1868.

CASH CAPITAL - - - - $400,000

ASSETS, February 1, 1868.

United States, State, and City Bonds (market value)	$411,686 00
Bonds and Mortgages	86,945 50
Demand Loans	153,450 00
Cash	56,077 99
Unpaid Premiums	12,793 79
Miscellaneous	45,238 20
	$766,171 48
LIABILITIES	29,971 48
Capital and Net surplus	***$736,200 00***

A DIVIDEND OF (6) SIX PER CENT. is this day declared, payable on demand, in CASH, to Stockholders.

ALSO, AN INTEREST DIVIDEND OF (6) SIX PER CENT. on outstanding Scrip, payable first of April in CASH.

ALSO, A SCRIP DIVIDEND OF (33⅓) THIRTY-THREE AND ONE-THIRD PER CENT. on the earned premiums of Policies entitled to participate in the profits for the year ending 31st January, 1868.

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THE

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ART. I.—1. *De Revolutionibus Corporum Cœlestium.* NIC. COPERNICI: Berlin.

2. *Vita Copernici.* GASSENDI: Paris.

3. *Éloge de Copernic.* F. ARAGO: Paris.

4. *Copernicus and his Native Country.* SZYRMA: London.

5. *Cosmos. A Description of the Universe,* Vol. ii. HUMBOLDT.

IT is but seldom that mankind bestows its highest praise on those who deserve it most. There is a favouritism even among the votaries of science which is not always either logical or just; they, too, are frequently influenced as much by prejudice as by merit. Some give the preference to a great thinker for no better reason than that he is their own countryman; and the same feeling prompts them to disparage the claims of one who is not their countryman. Others prefer one because his opinions or his faith accords with their own; or they condemn him if his opinions or his faith be adverse to their own.

This would seem incredible at first sight even to those who practise it most; they would be very unwilling to believe that they are so puerile and thoughtless. But on reflection the fact cannot be disputed. Thus, for example, there are none of our readers who are not aware that those whose vernacular is the English, regard Bacon as superior to any other philosopher of modern times, Newton to any astronomer, and Shakespeare to any poet. The French, the Germans, and the

Italians have similar predilections and prejudices, and they form their preferences accordingly.

It is true that in proportion as a nation is intelligent and enlightened, it is liberal and cosmopolitan; but no nation possesses so much intelligence and enlightenment, but that its masses are partial to the claims of their own countrymen. Still more partial are they in circumstances in which partisan politics interfere; but their partiality or prejudice attains its climax when influenced by religion.

Nor is it merely the vulgar whose judgment is thus warped; indeed, there are very few so intelligent and thoughtful as to be entirely free from all these prejudices. And if these few oppose the prevailing sentiment, they are regarded at best as visionaries or pedants. The timid shrink from this; and thus it is that error and injustice are propagated, not only from year to year, but from century to century.

Had mankind been capable of exercising an unbiased judgment as to the respective claims of its great thinkers, Copernicus would undoubtedly have occupied the highest rank among modern astronomers and discoverers. But all the circumstances by which he was surrounded were adverse to his fame. He was a native of Poland,* and the fate of his country was sealed while he was engaged on his great work; at the same time the Reformation had made considerable progress throughout Europe; and no dogma was more persistently or more zealously maintained by the Reformers, than that the old Church was inimical to science. That an obscure priest should be the founder of a system of astronomy which no modern had hitherto thought of, was very inconsistent with this theory, especially in view of the fact that the priest was so poor that he could not have published his great discovery had he not been aided and encouraged by dignitaries of the Church, and that he was permitted to dedicate his work to the Pope.

At this time science was more cultivated in Germany than in any other country in Europe, and the mathematicians

* "C'est donc à tort que le roi de Bavière," says M. Hoefer, "l'a fait ranger parmi les illustrations allemandes dans le Temple de Walhalla: Kopernik est Polinais et de nom et de naissance." *Nouvelle Biog. Gen.*, t. xxviii., p. 59.

were very unwilling to admit before the world that after all a "popish priest" could teach them the noblest of the sciences. As England borrowed her new ideas of religion from Germany, so she also borrowed her new ideas of astronomy from the same country. This will account, at least in part, for the opposition which even the learned, as we shall presently see, gave the new system.

It could not long be opposed, however; but as mathematician after mathematician, and university after university, felt constrained to accept it, their acceptance was accompanied, in nine cases out of ten, with some pretension calculated to diminish the glory of its discoverer. But historians and biographers soon found that by pursuing this course they injured themselves; accordingly, it was resolved, nearly half a century after the death of Copernicus, that in future his sacerdotal character should be kept in the background as much as possible. This had the desired effect to an incredible extent, and it serves to explain how it is that in most French, Italian, and Spanish histories the great astronomer is spoken of as Father Copernicus; whereas he is spoken of in all English works simply as Nicholas Copernicus; or if the fact of his being a priest is referred to at all, the allusion is generally accompanied with some remark which is in accordance with the theory that the teachings of Popery are incompatible with the development of science.

Thus it is that we meet very intelligent Roman Catholics as well as Protestants, who have no idea of the fact that the modern founder of the great system of the universe now universally accepted, was a poor country priest, who, ardently as he loved the sublime science of the heavens, never permitted it to interfere in the least with his duties to his parishioners.

These general remarks may suggest to the reader who is not entirely familiar with the labours of Copernicus, that it may not be uninteresting to accompany us in the sketch we are about to give of the life and works of the illustrious founder of the heliocentric system. Be this as it may, we can assure those who do accompany us, that if we err in forming our estimate it will not be from any prejudice of which we are conscious; nor shall we err from any unwilling-

ness to search for the facts wherever they are to be found. But first, it is proper that we should give a brief outline of the early life of the great astronomer.

Nicholas Copernicus * was born at Thorn, in Poland, February 12, 1473. Much has been written on the subject of his ancestry; some maintaining that he descended from a noble family, while others have contended that his father had been a serf. It is not of much importance which is the true story; but the dispute is now settled. Some family documents recently discovered prove beyond question that the mother of the astronomer was Barbel Wasselrode, the eldest sister of the Bishop of Ermeland, and that his father was a surgeon and the son of a respectable citizen of Cracow.

The parents of Copernicus were, however, poor; but his uncle, the bishop, took care to secure him a first-class education. Some wonderful stories are told about his precocious intelligence and wisdom. All we are informed on this point by the respectable historians of the time, is, that he made excellent proficiency at a neighboring academy, that he completed his classical studies at the college of Thorn, and entered the university of Cracow at the age of eighteen.

We may remark, in passing, that the works of Copernicus show that his classical studies were not merely nominal, for the former are written in good Latin, and many of the author's notes are in Greek; they also prove that Copernicus was familiarly acquainted with all the great thinkers of Greece and Rome whose writings were extant in his time. It is not strange, then, to find the future discoverer studying philosophy and medicine at the university in his eighteenth year; and that in due time he obtains his diploma as Doctor. His uncle did not content himself with merely placing him in the best university in Poland; he secured for him the tuition of Albert Brudenski, a professor who had already a European fame as a mathematician. The lessons of this professor inspired him with a passion for the sciences. At the same time he devoted much attention to perspective; this prompted him to learn painting, in which, some of his biographers tell us, he excelled.

* Vernacular *Kopernik*.

The bishop was much gratified with the progress he made, but believing that he only wanted opportunities to make still greater progress, he sent him to Italy, in order that he might have the benefit of the universities of Padua and Bologna, which ranked then amongst the first in Europe. In each of these institutions his name is recorded as a Pole. How well he availed himself of the advantages offered by them, is sufficiently proved by the fact that two years after his leaving home (1499), he was engaged at Rome as professor of mathematics, where he had students from almost every country in Europe.

If his object had been fame, he had now the most favourable opportunities of obtaining it; indeed, he had already become famous as a mathematician throughout Italy; and all the universities vied with each other in conferring honours upon him. While at Bologna the hypothesis of Dominicus Maria, on the variability of the axis of the globe, gave him the idea of the motion of the earth. While at the same university (1497), Copernicus observed the occultation of Palatium by the moon. In less than six months after his removal to Rome (1500), he observed an eclipse of the moon. But fame had evidently no charm for him; and that his uncle was equally indifferent to it, may be inferred from the fact that while the pupils of Copernicus are increasing from day to day, he expresses a wish to return to Cracow (1502), and become a priest; and his wish is readily complied with by the bishop. Even after his return to his native country, he was consulted by the Sacred College at Rome respecting the improvement of the calendar.

For eight years Copernicus discharged the duties of an humble curate. During the same period he prosecuted his mathematical studies with ardour. His diploma entitled him to practise as a physician, but he availed himself of it only so far as to prescribe for such of his poor parishioners as wished him to do so, without charging them a penny. After having served eight years as a curate, his uncle made him canon of the chapter of Frauenburg. We have abundant testimony that no benefice ever conferred was better deserved than this. That it was not a mere favour for which he was indebted to

the partiality of his uncle, is sufficiently proved by the fact that the inhabitants of Thorn, believing that it was not a sufficient reward for the good he had done as a clergyman, elected him to the archdeaconry of the church of St. John. Both offices were barely sufficient to enable him to live comfortably, to relieve the distressed among his parishioners, and to pursue his favourite studies.

Strong inducements were held out to him by foreign universities to retire from the ministry and devote himself exclusively to the sciences; he was much pleased with the invitations of his friends, and he replied to them gratefully and courteously, but with a firm resolution never to abandon his parochial charge. There is something truly sublime in the self-denial and fortitude thus evinced by Copernicus. It was literally true of him that he wished to do good by stealth, and blushed to find it fame. Nor was he unacquainted with what was passing in Germany and England at the same time. He read the best of Luther's works; he went to hear the sermons of the ablest of the Reformers; but they produced no effect upon him, except, as he assured his friends, to attach him more and more to the tenets of the old religion. Accordingly, whenever the bishop was absent, Copernicus was entrusted with the government of the diocese; and so satisfactorily did he perform its duties that, after the death of two successive prelates, he was appointed vicar-general. In addition to these proofs of confidence in his piety and judgment, he was frequently deputed to the provincial diets, to combat the doctrines of Luther.

But even while travelling, he never for a single day neglected the studies which were destined to immortalize him. While others were vilifying each other about dogmas, he devoted his leisure hours to the making of mathematical instruments and the construction of aqueducts; and specimens of his skill in both are to be seen to this day. The aqueduct by which he supplied the mill of Graudenz, near his native village, is in a state of complete preservation; but that with which he supplied the inhabitants of Frauenburg with water exists no longer; nothing is left of it but the tower on the banks of the Paffarge river, the

waters of which he raised to the highest point of the town. It is almost superfluous to remark that this tower is an object of great curiosity to travellers; it has been visited by scientific men from all parts of the world, and the interest which it awakens is not a little enhanced by a Latin inscription, rendered almost illegible by the hand of time, combined with the eagerness with which it has been examined by thousands.

> "Hic patiuntur aquae sursum properare coactae,
> Ne careat sitiens incola montis ope,
> Quod natura negat tribuit Copernicus arte,
> Unum pro cunctis Fama loquatur opus." *

The plain two-story house at Frauenburg in which Copernicus resided for more than a quarter of a century, is still standing, and is annually visited by a large number of travellers. The philosopher used the garret of this house, and the steeple of the cathedral, alternately, as an observatory. The greatest modern conquerors, as well as the most illustrious scientific men, including Wallenstein, Frederick the Great, the Great Condé, Napoleon I., Leibnitz, Kepler, and Galileo, have visited these precious relics of the humble votary of religion and science, who wished no higher honour than the consciousness of doing his duty and contributing all he could, without money and without price, to the physical and intellectual, as well as spiritual improvement of his fellow-man. In the zenith of Napoleon's glory, he visited the grave of Copernicus. In 1807, the Emperor had the astronomer's tomb, in the church of St. John at Frauenburg, entirely renovated at his own expense, and placed in such a position that it could be seen from all parts of the church. On another occasion, Napoleon visited Thorn, and found that the philosopher's house was occupied by a weaver, who was in possession of a portrait of Copernicus. The Emperor caused himself to be conducted to the house, and offered the weaver a considerable sum for the portrait; but the honest artisan, though

* Here the waters, gathered together, are forced upwards, so that the inhabitants even of the mountains may not thirst; what nature has denied, Copernicus bestows by the power of art; let fame proclaim the great work.

poor, and having a large family depending on his efforts, preferred to retain it, as a sacred relic.

After Copernicus had completed his great work, during the hours snatched from multifarious other labours, he hesitated for a long time to publish it. Many writers who are influenced more by sectarian bigotry than the interests of truth or science, attribute this hesitancy to fear of priestly persecution; nor do they fail to produce elaborate arguments in support of their pretension; and it so happened, as will presently be seen, that there were circumstances which seemed to render their allegations at least plausible. It is proper to add, however, that none of the great authorities on science, whether Protestant or Catholic, have given any countenance to the slander; on the contrary, all who deserve this character indignantly deny it. Our readers will require no better authority on the subject than Humboldt: "An erroneous opinion unfortunately prevails, even at the present day," says the author of *Cosmos*, "that Copernicus, from timidity, and from apprehension of priestly persecution, advanced his views regarding the planetary movement of the earth, and the position of the sun in the centre of the planetary system, as a mere hypothesis, which fulfilled the object of submitting the orbits of the heavenly bodies more conveniently to calculation, but which need not necessarily either be true or even probable. These singular words certainly do occur in the *anonymous* preface attached to the work of Copernicus, and inscribed *De Hypothesibus hujus Operis*, but they are *quite contrary* to the opinions expressed by Copernicus, and in *direct contradiction* with his dedication to Pope Paul III. The author of these prefatory remarks was, as Gassendi most expressly says, in his life of the great astronomer, a mathematician then living at Nuremberg, and named Andreas Osiander, who together with Schoner superintended the printing of the work *De Revolutionibus*, and who, although he makes no express declaration of any religious scruples, appears nevertheless to have thought it expedient to speak of the new views as of an hypothesis, and not, like Copernicus, as of *demonstrated truth*. The founder of our present system of the universe (for to him incontestibly belong the most im-

portant parts of it, and the grandest features of the design) was almost more distinguished, if possible, by the intrepidity and confidence with which he expressed his opinions, than for the knowledge to which they owed their origin. He deserves to a high degree the fine eulogium passed upon him by Kepler, who, in the introduction to the Rudolphine Tables, says of him, '*Vir fuit maximo ingenio et quod in hoc* exercitio (combating prejudices) *magni momenti est, animo liber.*' " *

When Copernicus is describing, in his dedication to the Pope, the origin of his work, he does not scruple to term the opinion generally expressed among theologians of the immobility and central position of the earth, " an absurd acroama," and to attack the stupidity of those who adhere to so erroneous a doctrine. " If even," he writes, " any empty-headed babblers (*ματαιολόγοι*), ignorant of all mathematical science, should take upon themselves to pronounce judgment on his work through an intentional distortion of any passage in the Holy Scriptures (*propter* aliquem locum *scripturæ male ad suum propositum detortum*), he should despise so presumptuous an attack. It was, indeed, universally known that the celebrated Lactantius, who, however, could not be reckoned among mathematicians, had spoken childishly (*pueriliter*) of the form of the earth, deriding those who held it to be spherical. On mathematical subjects one should write only to mathematicians. In order to show that, deeply penetrated with the truths of his own deductions, he had no cause to fear the judgment that might be passed upon him, he turned his prayers from a remote corner of the earth to the head of the Church, begging that he would protect him from the assaults of calumny, since the Church itself would derive advantage from his investigations on the length of the year and the movements of the moon." †

Copernicus was aware that he would encounter more or less opposition from all classes, so deep-rooted were the prejudices in favor of the old system. That of Ptolemy, with its cycles and epicycles, was universally received. It was essen-

* Humboldt's Cosmos. Harper's edition; vol. ii, pp. 305–6. † Ib.

tially the same as that which had been adopted by Plato and Aristotle, who were then the great oracles of the schools; and, what was more than all in the eyes of the masses, it was confirmed by the command of Joshua to the sun and moon. The mathematical studies of nearly half a century had convinced Copernicus that notwithstanding all these testimonies the earth did not stand still, nor form the centre of the universe, as was supposed. But what was he to do? What use was there in promulgating what scarcely any were prepared to believe? Was it not better, he thought, to wait a while, until the world was somewhat better prepared?

But in the meantime he was not idle. He knew that the views of any one man, however learned and conscientious, could have little weight against the prejudices of ages; he knew that the Greek philosophers still exercised a powerful influence even in regard to those questions upon which they differed with Aristotle and Plato. Pursuing this train of thought, he came to the conclusion that men who had reasoned so profoundly on other subjects must have had more correct ideas of the system of the universe than the modern world supposed. Under this impression he extended his researches among the ancients, and he was delighted to find his views corroborated at almost every step. The first fact that encouraged him to proceed in this direction was, that the Egyptians had taught the revolution of Mercury and Venus about the sun. He remembered that the recent discovery of America by Columbus was also a powerful argument in support of his theory; he thought that the most prejudiced might be taught to understand from this discovery alone, that there was nothing absurd in believing that the land and water formed one globe; that this globe was not of immense size as compared with other globes; that it circulated freely in space; and that it was even possible for inhabitants to exist on the opposite side of it, who had their feet opposite to ours.

That this was the manner in which he reasoned we have the philosopher's own authority:* "I therefore," he says,

* Magis id erit clarum, si addantur insulæ ætate nostra sub Hisanpuiram

"resolved to re-read all the works of the philosophers which I had been able to procure, for the purpose of assuring myself whether they contained any opinions different from those taught in the schools relative to the movements of the spheres of the universe. I first saw in Cicero that Nicetas had advanced the opinion that the earth moved.* Then I learned from Plutarch that others had entertained the same opinion."†

Copernicus does not require the reader to accept his word for this, but proceeds to quote his authorities in the original, so that all qualified for the task may satisfy themselves as to their genuineness. Hitherto scarcely any one had taken any notice of the account given by Plutarch of the system of Philolaus, in which the remark occurs that "the earth turns round the region of fire in passing through the zodiac, like the sun and moon."‡ As the philosopher proceeded farther he found that all the principal Pythagorians, including Archytas of Tarenta, Heraclides of Pontus, Echecratus, &c., had taught the doctrine that "the earth is not motionless in the centre of the earth, but that it revolves in a circle, and is far from occupying the first rank among the celestial bodies."§

Still more explicit, if possible, did Copernicus find the words of Timeus the Locriar, as reported by Plutarch, Timeus having called "the five planets the *organs of time*, on account of their revolutions."‖ But he found in Plutarch information on the subject still more important than this, if possible; namely, that Plato regretted towards the close

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Lusitaniæque principibus repertae, et præsertim America ab inventore denominata navium præfecto, quam, ob incompertam ejus adhuc magnitudinem, alterum orbem terrarum putant, præter multas alias insulas antea incognitas, quo minus etiam miremur antipodes sive antichthones esse. *De Revol., Corp. Cœlest.* cap. iii. p. 2, edit. 1543.

* *De Rev., Corp. Cœl.*, lib. i. ch. v.

† Nicetam sensisse Terram Movere. *Cic. De Ann.*, lib. v.

‡ Plutarch, *De Placitis Philosoph.*, lib. ii. 23.

§ *Τὴν γὴν οὔτε ἀχίνητον, οὔτε ἐν μέσῳ τῆς περιφορᾶς οὖσαν, ἀλλὰ κύκλῳ περὶ τὸ πῦρ αἰωρουμένην, οὔτε τῶν τιμιωτάτων, οὐδὲ τῶν πρώτων τοῦ κόσμου μορίων ὑπάρχειν.* Plutarch, *Numa;* cf. ejusd.; *De Placid.*, iii. 13. Clement-Alex., *Stromat.*, v.

‖ Plutarch, *De Placit.*, lib. iii. *Vide* also Dutens, *Origine des Découvertes attribuées aux modernes.* Tome i. p. 208.

of his life that he had not placed the sun in the centre of the universe, instead of making it revolve round the earth, as he had erroneously done.*

It is evident that Copernicus was well acquainted with the works of Archimedes, which were still extant in his time; and Archimedes reports that Aristarchus of Samos had composed an elaborate and learned work three centuries anterior to our era, for the purpose of refuting those philosophers who maintained that the earth was immovable in the centre of the universe. The work of the great Samian no longer exists, but Archimedes reports that it taught in a positive manner that "the sun rests immovable, and that the earth revolves round it, describing a circular curve, of which that planet occupies the centre." †

Plutarch, the most faithful of historians, not only corroborates the statement of Archimedes, but he distinctly informs us that Aristarchus was accused of irreligion by his pagan countrymen for having "disturbed the repose of the goddess Vesta by teaching that the sky was immovable, and that the earth performed a revolution in an oblique orbit round the sun at the same time that it performed a movement of rotation on its own axis." ‡

We take pains all the more willingly to place these facts before our readers, because it is the habit at the present day to claim all great discoveries for the moderns of the last two or three centuries, and to represent the most learned of the ancients as mere smatterers or blunderers. Even in the text-books used in colleges and universities these are the doctrines in which the students are instructed. It is intimated that, if for no other reason than that they were not Christians, the ancients could not have been sufficiently enlightened to have made themselves acquainted with the

* Πλάτωνα φασι πρεσβύτην γενόμενον διανενοῆσθαι περὶ τῆς γῆς, ὡς ἐν ἑτέρᾳ χώρᾳ καθεστώσης, τήν τε μέσην καὶ κυριωτάτην ἑτέρῳ τινὶ κρειττονι προσήκουσεν. —Plutarch, *Numa.*

† τὸν ἥλιον μένειν ἀκίνητον· τὰν δὲ γᾶν περιφερέσθαι περὶ τὸν ἥλιον, κατὰ κύκλου περιφέρειαν, ὃς ἐστιν ἐν μέσῳ τῷ δρόμῳ κείμενος.—Archimedes; in Psammite. The passage here quoted occurs in the *Arenarius*, p. 449, of the Paris edition of Archimedes of 1615. *Vide* Cosmos, vol. ii., p. 311.

‡ Plutarch, *De Facie in orbe Lunæ.*

true system of the universe. In proof of this we are told to remember that Newton had studied the Bible as much as astronomy. And it is precisely the class of instructors that reason in this way who accuse others of superstition and bigotry.

We have seen already that Copernicus was neither superstitious nor bigoted; but that he regarded facts as nothing the less important or worthy of attention for having been first discovered or promulgated by pagans. In accordance with this feeling he interrogated Greek and Roman alike; nor did he seek to disparage any modern opinions which any intelligent person could regard as worthy of attention. Thus it was that the philosopher turned from the Greeks to the Romans, and from the Romans to the philosophers of the Middle Ages, and was more or less confirmed in his views by each.

Among the Romans, indeed, he found but vague ideas of the Pythagorean system; but vague as they were, they were justly regarded by him as important, fully aware as he was that the Romans were not a philosophical or investigating people. In turning to Vitruvius, he found just such views as might be expected from one who did little more than take a hasty glance at the works of the principal Greek philosophers, and it must be borne in mind that Vitruvius may be regarded as a pretty fair specimen of the scientific men of Rome in his time, or indeed at any time before the fall of the Empire. Vitruvius tells us that "the heavens revolve perpetually round the earth;" but to this he makes the very important addition that "Mercury and Venus perform their revolutions round the sun, which serves them as a centre." *

We have the authority of Macrobius for the fact that Martianus of Capella also taught that Venus and Mercury did not revolve round the earth, but round the sun.† Of all the Roman philosophers the one who made the nearest approach to the truth was Seneca. "It would be well to

* Cœlum volvitur continentur circum Terram. Mercurii autem et Veneris stellæ circum solis radios, solem ipsum, uti centrum itineribus coronantes. Vitruv., *De Architectura*, lib. ix. c. 4, &c.

† Macrob., *In Somnium Scipionis*, lib. i. c. 19.

examine," says Seneca, "whether it be the world which turns round the earth, the latter remaining immovable, or whether, if the earth revolves, the world remains inactive. Be it remembered, there are men who maintain that it is we whom the world carries about unknown to us;* that it is not the movement of the heavens that causes the rising and setting of the stars; that it is we who rise and set relatively to them. It is a problem worthy of our contemplation to determine what condition we are really in; whether destiny has assigned us an immovable dwelling, or one endowed with a rapid movement; whether God causes the celestial bodies to revolve round us or us round them."†

These facts should teach the moderns to be somewhat less arrogant than they are, proving clearly as they do that the ancients were well acquainted with the true system of the universe. All the works of the Greek astronomers had been lost; nothing was known of them in the time of Copernicus except by tradition, or the allusions made to them in such more recent works as those we have quoted; and few took the trouble to examine these. Be it remembered that the Pythagoreans were the chief teachers of the heliocentric system; and that one of the chief dogmas of Pythagoras was that philosophers should not communicate their thoughts to the vulgar—that, in a word, they should publish nothing. The Pythagoreans might indeed prepare essays and read them to each other for mutual instruction; but they should not permit them to be copied.

When the civilizations of Greece and Rome passed away in turn, it was not strange then that no great astronomical works were left. The Turks on the one side, and the Goths on the other, were long the sworn enemies of the sciences, especially of astronomy, which they ranked among the black arts. This will account for the changes that had taken place even in the time of Ptolemy, who, it must be borne in mind, was the great oracle of astronomy in the time of Copernicus.

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* Nos esse quos rerum natura nescientes ferat.

† Digna res est contemplatione, ut sciamus in quo rerum, statu simus pigerrimæm sortiti an velocissimam sedem; circa nos Deus omnia, an nos agat. Seneca, *Quæst. Natural.*, lib. vii. c. 2.

His *Syntaxis* was regarded as an authority which it was rash if not impious to question; in short, it was the Bible of the scientific men of that age; if some refused to accept it as their guide, some also refused to accept the Pentateuch. Yet Ptolemy was not at all ignorant that others had placed the sun in the centre of the universe and made the earth move round it; but he had only a vague idea of the views of the ancients.

This any one who takes the trouble to consult his works may see for himself; for he has devoted whole chapters to the heliocentric system, but only for the purpose of ridiculing it. As there are but few of the most intelligent class who are acquainted with the works of Ptolemy, we will translate a passage or two from his chapter on the Pythagoreans, because we think they are interesting if only for the explanation which they afford of the hesitancy of Copernicus to promulgate views which he thought might render him ridiculous. The arguments which Ptolemy adduces against the mobility of the earth are similar to those which many atheists adduce against the existence of the Creator. If the atheists sometimes combine much that is sublime and true with the most egregious and absurd errors, Ptolemy does the same. First, he proves to the satisfaction of any intelligent person, that the earth is but a point in comparison with the universe, but it is precisely, he tells us, because this is the case, that it is not only absurd but absolutely ridiculous to maintain that it is the earth that moves and not the sun or the heavens. "We cannot say of the universe," he says, "that it is above or below, since this would not apply to a sphere. With regard to the bodies which it encloses, those which are entitled light are drawn by their nature outside and go to the circumference; they seem to us to be borne aloft, because this is the idea we have of the space above our heads, to the surface which seems to envelop us. Heavy bodies are, on the contrary, composed of dense elements, and tend to the centre; they seem to us to fall down, because all beneath our feet we call *below;* these bodies form a heap, without doubt, about the centre, by their opposing effects of time, shock, and friction. One can under-

stand, then, that the whole mass of the earth is so large compared to the bodies which fall upon it, that it can receive without having the least oscillation communicated to it either by their weight or their celerity. But if the earth had a movement in common with all the other heavy bodies, it would evidently outstrip them by the effect of its mass, leaving the animals as well as heavy bodies in general without any other support than the air, and would finally tumble out of the heavens altogether. Such are the consequences which would result; they are *in the highest degree ridiculous*, even to imagine." *

During the long sway of the Ptolemaic system, this was regarded as conclusive against the annual revolution of the earth as any thing in Newton's Principia is in our day, on the laws of gravitation. Nor was Ptolemy less confident of the impossibility of the diurnal rotation of the earth on its axis. "There are persons," he says, "who, arguing in this way, pretend that there is no reason to suppose that the heavens remaining stationary, the earth may not revolve on its axis from west to east, and accomplish that rotation each day. It is true, that with regard to the stars, there is no reason, taking account only of appearances, why it may not be supposed, for the sake of greater simplicity, that it may be so. But those persons have little idea, in view of what passes around us in the air, how *supremely ridiculous* is their opinion. For if we accord to them what is not, that the lightest bodies do not move, or do not move otherwise than those of a contrary nature, whilst the celestial bodies evidently move with greater velocity than the terrestial; if we accord to them that the heaviest and densest bodies have a movement peculiar to themselves which is rapid and constant, whereas in reality they obey only with pain the impulses communicated, those people will be obliged to admit that the earth by its rotation has a more rapid movement than any of those which take place around her, since she would perform so large a circuit in so little time. The bodies not supported on her would then appear to have always a movement

* *Syntaxis Mathemat.*, lib. i. c. 5.

contrary to hers, and no cloud, nothing that flies or is projected would appear to direct itself towards the east, since the earth would always precede it in that direction; in this sense it would anticipate any projectile by its movement towards the east, so that all bodies, the earth alone excepted, would go backward towards the west. If they said that the atmosphere is carried along by the earth with the same rapidity as the latter is herself, it would not be the less true that those other bodies would not have the same velocity; or if those bodies were drawn along as having the same velocity as the air, no one would precede or follow another; they would all appear stationary, whether they flew, or were projected." *

Now, when Copernicus commenced his great work, these views were as universally received as Kepler's great Laws are at the present day. Ptolemy was considered as great an authority on Astronomy then, as Newton, Kepler, Galileo, and Laplace together are now.

But, it was not alone the Greeks and Romans who, when intelligently interrogated, encouraged Copernicus in his great work; it was not alone the Pagans who had maintained the mobility of the earth; a prince of the church which is said to be inimical to science had done so. The celebrated Cardinal Cusa, who had died ten years before Copernicus was born, declared it evident (manifestum) that in reality it is the earth which moved (istam terram in veritate moveri), although we may not be able to prove this movement except by comparison with some fixed element of the heavens." † The work in which this bold statement is made is still extant, and is entitled *De Docta Ignorantia.* The Cardinal wished to show, as the title of his curious and valuable treatise implies, that there were a great many who desired to be considered learned that were in reality ignorant; and what better illustration could he have given of the fact than this?

Why, then, it may be asked, did Copernicus hesitate. If a prince of the church had previously proclaimed that the

* Ptol. *Syntax. Math.*, lib. 1, c. 6.

† Cardinal Cusa. *Opera*, Bâle, 1565. fol. p. 41.

earth moves, and suffered no persecution for having done so, —and he could hardly have been ignorant of the fact—what was he afraid of? But this does not meet the difficulty. Copernicus was aware that, old as the Church was even in his time, philosophers had been persecuted before it existed. He knew it was not the church that persecuted Socrates, and finally put him to death, but the populace; he was aware that it was not the church that placed the life of Anaxagoras in jeopardy for having asserted that the moon was considerably larger, small as it looked in the heavens, than the whole of the Peloponnesus, and that if its centrifugal force ceased for a moment, *it would fall to the earth like a stone from a sling.**

But altogether independently of any apprehension of personal danger, Copernicus was one of those gentle spirits who shrink from creating any commotion; at the same time he did not wish to be ridiculed even by the vulgar. That he was more or less influenced by all these circumstances is sufficiently evident from a passage in his dedication of his great work to Pope Paul III. "I do not doubt," he says, "but that as soon as it is known what I have written in this work about the movements of the earth, I shall be scoffed at (statim me explodendum cum tali opinione clamitent). Besides, I am not so amorous of my own ideas as not to take account of what others may think of theirs; accordingly, although the thoughts of a philosopher are at variance with those of the vulgar, because he proposes to himself the research of truth as much as God permits it to human reason, I am not, however, disposed to entirely reject the opinions of those who differ from me."

All these reasons, he tells us, combined with the fear of making himself an object of ridicule, had almost determined him to abandon the idea of publishing the work. As we have already intimated, he had no intention, however, of destroying it, for he was fully aware of its value. His idea was to entrust it to some faithful disciples, who would publish it after his death, when they thought the proper time had arrived. "But

* Plutarch, De Facie in Orbe Lunæ, p. 923.

some friends," he says, "among whom are Cardinal Schomberg and Eidemann Gisias, bishop of Kulm, have succeeded in conquering my repugnance. The latter, especially, earnestly insisted on my publishing this work, which I have held back, not for nine years, but for near thirty-six." *

These facts are attested by several writers whose veracity is beyond question. Gassendi says that the Bishop of Kulm, a native of Dantzic, who had for years urged Copernicus to publish his work, at last received the manuscript with the permission of having it printed fully in accordance with his own free pleasure. He sent it first to Rheticus, professor at Wittenberg, who had until recently been living for a long time with his teacher at Frauenburg.

Thus, we are bound to admit as beyond all dispute, that not only was the system of the universe now universally received founded by a priest of the church which is said to be an enemy of science, but that it was a bishop and cardinal of the same church who above all others took most pains to have the system promulgated to the world. It was, in fact, they who paid all the expenses of printing the work; and finally it was to the head of the church the work was dedicated; nor was it dedicated to the Pope without his having given full permission; and it is further proved that Paul III. had not given this permission until he had made himself acquainted with the character of the work.

We think it due to the Catholics to state these facts; nay, the cause of truth requires that we should do so; for, as we mentioned at the beginning of this article, there is not one of the illustrious thinkers of modern times to whom less justice has been done in the English language than Copernicus. As an illustration of the treatment he has received at the hands even of the most respectable English historians, we will quote a remark or two from "Hallam's Literature of Europe." There are few works in our library which we value more highly than those of Hallam; and there are few more honest or more liberal writers in any language. We fully acquit the historian of intending to do any injustice to

* Gassendi, Vita Copernici, p. 319.

Copernicus as a discoverer, or as an individual; he had no such object. But when he wrote his valuable work it was not fashionable—nay, it was scarcely respectable, to speak of any Roman Catholic ecclesiastic, as such, with any deference to his sacerdotal character. Accordingly, Hallam takes care to say nothing about the profession of Copernicus, or if he makes an allusion to it, he does so rather by way of casting a slur on the church. The historian introduces Copernicus to us as follows: "*This founder* of modern astronomy was born at Thorn," &c. Not a word is said of his having been educated as a priest, or of his having discharged any of the duties of a Christian minister. The only remark that can be regarded in this light is the following: "*He became possessed* afterward of an ecclesiastical benefice in his own country." *

The natural inference from this is, that without having been educated for the priesthood, and without having discharged any of the duties of a priest, he received church property as a gift. The reader has no reason to suppose, however, that this benefice was given to Copernicus as a reward for the service he had rendered, or was likely to render, to science. Judging from the account of Hallam, his cultivation of science would have been more likely to have deprived him of a benefice than procured him one. "He seems to have completed his treatise about 1530," says the historian, "but perhaps dreaded the bigoted prejudices which afterward oppressed Galileo. Hence he is *careful to propound his theory as an hypothesis;* though it is sufficiently manifest that he did not doubt of its truth."†

Gassendi has clearly proved that Copernicus had *not* propounded his system as an hypothesis; and his views on the subject have received the sanction of Humboldt, as we have already seen. We mention the matter here, however, only as illustrative of the treatment received by Copernicus even at the hands of historians, who are in general just and liberal. But no testimony is required by

* Introduct. to the Lit. of Modern Europe. Vol. I. p. 236.

† *Syntax. Math.*, lib. 1, c. 6.

any one acquainted with the great work of Copernicus to refute the charge of his having represented his labors as different from what he believed them to be; many passages could be adduced in his own language to show that he neither doubted the truth of his system nor made any attempt to cause others to doubt it. But one will suffice; we quote this all the more willingly, because it affords a good specimen of the animated, picturesque, and graphic style of the author. "By no other arrangement," he exclaims, with enthusiasm, "have I been able to find so admirable a symmetry of the universe, and so harmonious a connection of orbits, as by placing the lamp of the world (*lucernam mundi*), the sun, in the midst of the beautiful temple of nature, as on a kingly throne, ruling the whole family of circling stars that revolve around him (*circumagentem gubernans astrorum familiam.*)" *

Copernicus was seventy years of age when he finally complied with the wishes of Cardinal Schomberg, the Bishop of Kulm and other friends to have the work published. When the first printed copy was brought to him, he was able to do little more than touch it with his hands; several of his biographers, including Gassendi, say that he only lived a few hours after receiving it.† Humboldt maintains that he did not die for several days afterward, but says that his thoughts were no longer fixed on earthly things.‡

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* For the benefit of the classical student who may not have access to the original treatise, we subjoin the whole passage in which these remarks occur, as it was penned by the illustrious author; and it will be seen that it not only breathes the genuine classic spirit, but is highly poetical: "Quis enim in hoc pulcherrimo templo lampadem hanc in alio vel meliori loco poneret, quam unde totum simul possit illuminare? Siquidem non inepte quidam lucernam mundi, alii mentem, alli rectorem vocant. Trismegistus visibilem Deum, Sophoclis Electra intuentem omnia. Ita profecto tanquam in solio regali Sol residens circumagentem gubernat Astrorum familiam: Tellus quoque minime fraudatur lunari ministerio, sed ut Aristoteles de animalibus ait, maximam Luna cum terra cognationem habet. Concepit terra interea a Sole terra, et impregnatur annuo partu. Invenimus igitur sub hac ordinatione admirandam mundi symmetriam ac certum harmoniæ nexum motus et magnitudinis orbium; qualis alio modo reperiri non potest. Nicol. Copern., *De Revol. Orbium Cœlest.um*, lib. i. cap. 10, p. 9, b.

† Vide Gassendi's Life of Tycho Brahe, p. 320.

‡ Cosmos, Vol. II. p. 304.

As already remarked, the highest in authority in the Church were fully aware of the character of the work long before its publication; but that did not deprive him of any honor which it was proper to confer on a clergyman at his decease. Most of his biographers record that he was buried at the foot of the altar before which he had been accustomed for more than thirty years to celebrate mass.

As the illustrious author had anticipated himself, the new system encountered much opposition; it was denounced as dangerous, and ridiculed as absurd, in turn; but not by the Church. Its chief assailants were the astronomers, who still refused to believe that Plotemy, their cherished master, and the oracle of centuries, was after all but a blunderer. Hence it was that, as Montucla informs us, it was easy to reckon the number of the adherents of the Copernican theory during the 16th century. After Rhæticus they may be nearly reduced to Reinold, author of the Prussian tables; Rothman, whom Tycho drew over afterwards to his own system; Christian Wursticius (Ursticius), who made some proselytes in Italy; finally Mæstlin, the illustrious master of Kepler.*

Nearly all the other astronomers who published their productions, made attacks upon the Copernican system, in one form or other. The controversy between the adherents of the rival systems attracted little attention for about a quarter of a century after the death of Copernicus; then it became the all-absorbing topic among the learned. Not only did the Church still refrain from condemning the work of Copernicus, but it continued to give new assurances from time to time of its high esteem for the author. In illustration of this, we need only remark here that the philosopher was thirty-eight years dead, when Cromerus, Bishop of Ermeland, caused the following inscription to be placed on his headstone, which is shown to visitors at the present day, in the Chapter's room:

D. O. M.

R. D. Nicolai Copernico Tournensi,
Artium et Medicinae Doctori, Canonico Varmiensi,

* *Vide* Drinkwater, Life of Galileo, p. 83; also Playfair's Dissertation, and Hallam's introduction, Vol. I. p. 397.

Praestanti Astrologo et ejus Diciplinae instauratori,
Martinus Cromerus Episcopus Varmiensis
Honoris et ad Posteritatem Memoriæ causa posuit,
MDCXXXI.

In a letter enclosing this inscription, dated Nov. 21st, 1580, the bishop says that as Copernicus while living was an ornament, not only to his church but to his country, so now that he is dead he has no need for a monument, but that the living might honor themselves in honoring him. Another monument, of uncertain date, is dedicated to Copernicus in the church of St. John, at Thorn, his native town. Here he is represented before a crucifix in his canonical robes, with a celestial globe by his side, to which is appended a scroll, bearing the following inscription:

"Non parem Pauli gratiam requiro,
Veniam Patri neque posco, sed quam
In crucis ligno dederas Latroni, sedulus oro." *

Nicolai Copernico Thorunięnsi absolutae subtilitatis mathematico, ne tanti viri, apud exteros celeber, in sua patria periret memoria hoc monumentum positum. Morût Varmiae in suo Canonicatu, anno 1543, die 4, aetatis LXXIII.

It must be admitted that in all this we have illustrations, not of "priestly bigotry," but of priestly enlightenment and liberality. When there is bigotry, far be it from us to conceal or justify it; none are more willing to expose and denounce it. We have brought forward the above facts in order to vindicate truth, and do justice to those who did not deserve to be maligned. Paul III. was far too enlightened a pontiff to persecute a man of genius, even if he conscientiously believed him to be the cause of much mischief; he had not the least disposition to persecute even Luther—nor did he ever affect to despise him, but sent his legates to confer with him as with a king or emperor. It was the same pope who established the order of the Jesuits, and required that the chief weapon they should use in favor of the Church was

* "Not equal favor with Paul do I require; neither do I ask pardon from the Father; but that which thou gavest to the robber on the cross, I earnestly pray for."

knowledge; and that they should combat ignorance by devoting most of their time to the education of youth.

But all popes have not been so enlightened, thoughtful, and liberal as Paul III.; nor have all cardinals and bishops been as friendly to science and scientific men, as were the patrons and friends of Copernicus; and yet we are bound to admit that the large majority of ecclesiastics of all grades have been favorable to science. For one who has opposed its progress, or persecuted its votaries, at least fifty have pursued the opposite course. This is the reason why we always honor the Church, no matter how much we may differ with Catholics in regard to some of its dogmas. We think nothing is more unjust than to hold it responsible for what one individual out of fifty may do, even though that individual be a Pope. Accordingly we do not condemn it, because it so happened that a decree was issued from the Vatican the 5th of March, 1616, condemning the great work of Copernicus, as "containing ideas given as true, of the situation and movements of the earth—ideas entirely contrary to the Holy Scriptures."

We hold that the act itself was wrong, but there were extenuating circumstances connected with it. To those unacquainted with the facts, the natural inference would be that Paul V., under whose pontificate the decree was issued, was bigoted and intolerant. Such was not the case, however; he was, on the contrary, one of the most enlightened and liberal men of his time, and he was possessed withal of undaunted courage. It was at this period that the Council of Ten at Venice oppressed all whose misfortune it was to be under its jurisdiction. The pope ordered his representatives to protest in the name of humanity as well as of the Church against the habitual murders and spoliations of that infamous junto. The two ecclesiastics deputed to make this protest, were immediately seized, condemned, and imprisoned, without being allowed any opportunity to defend themselves. Nor did the Council of Ten content itself with this; it issued a decree which deprived the clergy of the most ordinary privileges—prohibiting them, under pains and penalties, from even building a church without permission.

The pope issued an "admonition," warning the government that if it did not cease its oppressions he would excommunicate the Doge and the whole Senate, as well as the Council of Ten. When Paul V. saw that this had not the desired effect, and had only resulted in the expulsion of the Jesuits, the Capuchins, and others, who had obeyed the interdict, he referred the difficulty "to the sense of humanity and justice" of Henry IV. of France, requesting at the same time that Henry would only exercise his moral influence. The king complied with the wishes of the pope; and the difficulty was settled for the time—the Council of Ten giving assurances through the ambassadors of the Republic that it would see that its officers would, in future, exercise more discrimination in making arrests, &c. The pope was gratified to know that if his interdict failed his influence saved the lives and properties of many; and it will be admitted that conduct like this is not characteristic of a bigot.

In addition to all this, Sarpi had attacked the church, and tried to introduce the doctrines of Calvin into Venice, drawing some of his strongest arguments from the views of Copernicus on the motion of the earth. "If it is not correct," says Sarpi, "that Joshua commanded the sun to stand still, and that this command had the effect of lengthening the day, as we are told in the Bible, certain other commands are equally misunderstood, and the more we reflect on the whole question the more satisfied we must be that nothing occurs to the earth, the sun, or any other body whatever, or to man himself, but *what was ordained by God before the creation of the world.*" This, be it remembered, was the *dictum* of the Secretary of the Council of Ten—the person who framed its iniquitous laws, suggesting improvements whenever he could in the art of aggravating the torments of his fellow-citizens.

The pope also saw that even in France there seemed to be danger that the new ideas would prove injurious to religion. Saurez, a Jesuit, had written a work entitled "*Defense de la foi catholique*," which was condemned by the Parliament of Paris to be burned by the public executioner for no other reason than that some passages in it seemed to allude derog-

atively to monarchical authority. At this time several Jesuits were members of the Congregation of the Index, the tribunal whose duty it was to examine all books supposed to be injurious to religion, and to condemn such as were believed to have any such tendency.

Now, if it be borne in mind that Paul V. was sixty-four years of age at this time, and in so feeble a state of health as to be incapable of performing any of the functions of his high office, it will hardly seem so serious an affair, after all, that *De Revolutionibus Corporum Cœlestium* was placed on the Index nearly a century after the death of its illustrious author. Science has suffered but little if anything from it; and still less has the fame of Copernicus suffered. We have seen already that the latter was placed on a firm basis by princes of the Catholic church. If it has suffered any injury since their time the blame must be traced to a different source, as we have shown at the beginning of this paper.

It should be remembered that, independently of the prejudices entertained against Catholics even by eminent writers for more than a century, some of the claims of Copernicus to immortality conflict with those of Newton. The great English philosopher receives the credit of being the discoverer of gravity; but Copernicus had indicated the existence of that power in the plainest terms more than a century before he was born. "For my part," says the founder of our present system, "I regard weight (*gravity*), as a certain natural appetency with which the Divine Architect of the universe has endowed the parts of matter, so that they may unite in the form of a globe. This property is probably possessed by the sun, the moon, and the planets; *it is to it those bodies owe their rotundity, as well as their movements.*" *

* Equidem existimo, *gravitatem* non aliud esse, quam appetentiam quandam naturalem partibus inditam a divina providentia Opificis Universorum, ut in unitatem integritatemque suam sese conferant in formam globi coëuntes. Quam affectionem credibile est etiam Soli, Lunæ, cæterisque errantium fulgoribus in esse, ut ejus efficacia in ea qua se repræsentant rotunditate permaneant, quæ nihilominus multis modis suos efficiunt circuitus. Nicol., Copern. *De Revol. Orb. Cœl.* lib. i. cap. 9, p. 7.

The very terms used by the author, as may be seen from the original, which we transcribe below, is *gravity*. This shows that, although the laws of universal gravitation or attraction have been developed by Newton and Kepler, to Copernicus, undoubtedly, is due the honor of priority in suggesting the existence of those laws. There are several other discoveries the germs of which are to be found in the great work of Copernicus; but our article has already exceeded the bounds we had prescribed for it. Our object in writing it was twofold; we thought it would be interesting, as well as fair, to show that Copernicus was a much more profound and original thinker than he is generally regarded at the present day; we also wished to show how unjust and ungenerous it is to brand as the enemies of science a body of men who, independently of all they have done besides for the development of the human mind, and especially during the long centuries when they alone were the only protectors and cultivators of learning, have given us through one of the most unassuming of their brethren, the noble system of the universe which is now universally received. Whether we have succeeded or not, it will be for the intelligent and impartial reader to say.

ART. II.—1. *Human Life in Shakespeare.* By HENRY GILES, Author of "Illustrations of Genius," &c. Boston, 1868.

2. *Studies of Shakespeare.* By CHARLES KNIGHT. London, 1868.

3. *Life and Genius of Shakespeare.* By RICHARD GRANT WHITE. Boston, 1866.

THE vitality of Shakespeare, and the fresh interest that he still possesses for the world, are striking phenomena. In turning over lists of new publications, the number of new editions of Shakespeare and works upon Shakespeare continually and forcibly draw attention. In the course of a cursory review we have counted more than thirty such publications issued in Great Britain and the United States only within the compass of eighteen months, and this without taking into account the numerous magazine and newspaper

articles upon the same subject. The works in foreign languages, ranging from French and German even to Hindostani, into which language Shakespeare has recently been translated, would doubtless double the number. The various character of these works, costly illustrated sets, and cheap editions, new annotations and fac-similes of first folios, studies of his delineations of insanity, new explanations of his meaning, discussions of his religious opinions, his relations to the other Elizabethan poets, attempted derivations of his thoughts from this and that eminent man, and even attempted proofs that the works called his were really the works of other eminent men of the time,—this varied character of Shakesperian literature is as noteworthy as its quantity.

It has been often said that a complete collection of Shakesperian literature would form of itself a considerable library. Certainly the annual accessions to it would make a good yearly increase to a library. Well worn as the subject of "Shakespeare" is, it still keeps its popularity. The strongest proof of the living power of genius is that it draws kindred genius to the study of itself; that to its fountain "other suns, repairing in their golden urns, draw light." De Quincey was hardly extravagant in saying that Shakespeare was a necessary luxury of modern life.

But much as has been said about Shakespeare, we have wondered that one of the most interesting topics has been almost neglected. Of the quiet years passed by Shakespeare in Stratford and London there has been no lack of biographers who, like dogs with their bones, have made up for the lack of materials by the fierceness and pertinacity with which they have quarrelled over them. But the main part of Shakespeare's life,—not the fragment of fifty years at the Globe Theatre and New Place, but the centuries during which he has travelled into all parts of the earth, in which he has been growing successively into our wonder, friendship and comprehending worship, in which he has been impelling and directing the progress of the world,—this, his greater and truer life, has seldom had its history recounted.

It is this to which we would direct the attention of our readers. We would sketch briefly some of the vicissitudes

of Shakespeare's fame, the rise of an intelligent admiration of him, and the special influence which he has exerted upon the movement of the world.

Accustomed to hear Shakespeare spoken of in language little below idolatrous homage, and, if we cannot appreciate him to keep our lips tightly glued over the rank heresy lest we be thought witless or crazy, we can hardly realize some of the things that have been formerly said about Shakespeare. A little incredulity might be easily excused in regard to the statement that in 1693 an eminent historian in a critical Essay upon Shakespeare, called Othello "none other than a brutal farce without salt or savor," and declared that "in the neighing of a horse or the growling of a mastiff there is as lively expression as, and I may say more humanity than, many times in the tragical flights of Shakespeare." Yet the doubter may find it set down in the text of an Essay upon Shakespeare by Thomas Rhymer the author of the Fœdera.

Voltaire may perhaps be credited with having said anything iconoclastic and extravagant, even that "Shakespeare had more barbarity than genius," and that Hamlet was a "gross and barbarous piece which one would think was the fruit of the imagination of a drunken savage"; but it seems hardly possible that he could have been, as he seems to have been, doing little more than expressing the general sentiment of Frenchmen at that day. There were even many of Hume's countrymen, a hundred years ago, who would have had no hesitation in uniting with him in declaring that Shakespeare "could not for any length of time uphold a reasonable propriety of thought." It is hardly less curious that for a century and a quarter the strongest admirers of Shakespeare could speak of him as a wonderful genius, devoid of all judgment or taste, but by some blind inspiration mixing with a tissue of the grossest absurdities, strands of finest truth;—a kind of poetical Osiris or Ammon, half brute, half god. It is hardly a hundred years since this was the prevalent tone of comment upon Shakespeare.

To suppose, however, that Shakespeare, until about a century ago, was never much thought of, is a mistake. To be sure, the tone of feeling toward him during his own life-

time and the first century after his death, was far removed from the indiscriminate laudation of the present day. If there was no other reason, there were too many lean and hungry Cassiuses still alive who had themselves talked and walked with him, perhaps had heard him in a fever cry for some drink like a sick child, and who pragmatically challenged the right of this Shakespeare to become a god and bestride the narrow world like a colossus. Was he not a man such as they? Was not Ford or Beaumont as good a name as Shakespeare?

But the tone of feeling in regard to him was equally removed from that of contempt or neglect. Though placed on no unapproachable pinnacle, he was yet regarded as the foremost of his contemporaries. The flights of the "Sweet Swan of Avon" both charmed the populace in the Globe Theatre, and took captive the royal Eliza and James. The intellectual head and literary authority of the first generation after Shakespeare's death was Ben Jonson; of the second, Milton; of the third, Dryden; and each of them gave Shakespeare ample honor in most emphatic phrase,—tributes which have become the current coin of quotation. Throughout this period Shakespeare was the favorite of the stage, and before the close of the seventeenth century four large folio editions of his work had been published, a success which should be measured by the fact that within the same period no other great writer of that age had gone beyond a single edition.

But in the last third of the seventeenth century a change came upon English literature.

> "In our old plays, the humour, love and passion,
> Like doublet, hose, and cloak are out of fashion.
> That which the world called wit in Shakespeare's age,
> Is laughed at as improper for our stage." *

The Restoration brought across the Channel, among the retinue of other vices that made the court of Charles the Second infamous, the artificial rules and fashions of the French Classical School. Pretty nearly the whole literary world was speedily infected, and the entire herd of smaller

* Prologue to Shirley's Love Tricks, 1667.

critics and authors completely possessed by the malady in its most virulent form. The dicta of Aristotle and the example of Corneille were set up as the infallible standards of poetic merit. The punctilious observance of the Unities, of a rosewater decorum and of what was called poetical justice, became the test of dramatic merit. The perfection of style was to be found in a minute regularity and correctness, a cold and unvaried elegance, an imposing travestying of commonplaces. Imagine, as has been well suggested, a Fifth Avenue exquisite surveying a thunder-scarred Titan through an Opera glass and complacently comparing the giant's uncouthness with his own pretty figure and unexceptionable make-up. With the same delightful appropriateness and modesty the London critics brought Shakespeare to their classical fashion-block; and because his colossal form could not be pressed into conformity with its dapper proportions, Shakespeare was declared a monstrosity "*in toto*," or at least every limb that projected was pronounced a deformity. Even the beauties, which they could not help being moved by, they declared had no right to move or to be called beauties. So they at once pitied Shakespeare and despised the town for its unaccountable bigotry in continuing to admire him after they had shown forth his faults; "which I take to be," says the modest Gildon, "a much greater proof of the folly and abandoned taste of the town than of any imperfection in the critic." The reader ought not to be deprived of a sight of some of this infallible criticism. It was Rhymer's Essay on Shakespeare, a few *morceaux* from which we have already given, which Gildon was defending against Dryden, who, while admitting the justness of Rhymer's criticism, asked, "who, however, minds the critics or admires Shakespeare the less?"

"Whatever rubs or difficulties may stick upon the bark, the moral, sure, of this fable," (he is speaking of the play of Othello,) "is very instructive. First, this may be a caution to all young ladies of quality how, without their parents' consent, they run away with blackamoors. Secondly, this may be a warning to all good wives that they look well to their linen. Thirdly, this may be a lesson to their husbands

that before their jealousy be tragical, the proofs may be mathematical."

The plot of Othello is called an improbable lie, and the characters and manners are said to be not less unnatural and improper than the fable was improbable and absurd.

Poor "ugly duck!" Unhappy butt of ridicule for all the ducks and geese, with your long, crooked neck, which you are always arching so absurdly, and your unvaried white plumage, such as no respectable duck was ever known to wear, and your low-bred way of thrusting out your breast, and drawing back your head, and raising your wings when you glide over the water! How sad it is you were never taught the proper way for a duck to carry herself; and what a height of absurdity that there should be some who *will* say that you are a *swan*, and beautiful! The ugly duckling in the tale, though long despised and laughed at, is at length acknowledged to be in truth a swan, and extorts the admiration of her former disparagers. Stronger than logic, principles, prejudices, is the evidence of the senses. The most conclusive arguments for the non-existence of pain cannot hold their ground long against the toothache; and when Diodorus Cronus got his shoulder-blade put out of place, and the physician whom he sent for to reset it, with sly maliciousness kept him in torture, while he proved by Diodorus' own reasoning that it was absolutely impossible for anything to move or to be moved,—even Diodorus then, we fancy, was convinced that his pet syllogism, which passed unsolved for two thousand years, had some terrible flaw in it somewhere. So before long, the spell of Shakespeare's power and splendor broke through the critics' armor of conceit. His genius shone forth so dazzlingly that they had to see and acknowledge it in spite of themselves. Yet, while the next race of critics assigned Shakespeare the first place in comparison with all other poets, and brought out edition after edition, and commentary after commentary with amazing assiduity; on the other hand, they still imagined that he wrote without any system or principle. They found him as full of strained conceits and ridiculous rubbish as of beauties. When the impulses of their hearts gained the ascendency, he was called

divine; when their critical rules mastered, he was pronounced imbecile. They could no longer help acknowledging that this beautiful passion-flower which so enchanted them, had real loveliness as well as the regular lilies which were the embodiment of their principles of beauty, yet they still clung obstinately to their old idea that there was only one standard of beauty for all, and that that model was exhibited by these familiar simple lilies, all departures from the form of which, however pleasing, were yet irregularities and excrescences.

Dennis and Rowe, the editors of the first critical edition of Shakespeare, were among those who were completely ridden by that Old Man of the Sea of the day, the critical rules of art. It was to Shakespeare's lack of a knowledge of these that his faults, as they thought, were owing. The notion so possessed Dennis, together with Cibber, Davenant, Tate, and other now forgotten *dramatic masters*, that they set busily to work remodelling and improving Shakespeare, making his verses smooth and even, and his plots regular, and their catastrophes accordant with poetical justice. For example, Shakespeare had carelessly put into the mouth of Coriolanus, when tauntingly called a "boy" by Aufidius, the rough and uneven lines,

> "Boy! False hound!
> If you have writ your annals true, 'tis there
> That like an eagle in a dove-cote, I
> Fluttered your Volsces in Corioli—
> Alone I did it, ——Boy!"

These ragged and careless lines Dennis with happy skill recasts into lines of regular length and smoothness, thus:

> "This boy, that like an eagle in a dove-cote
> Fluttered a thousand Volsces in Corioli,
> And did it without second or acquittance,
> Now sends their mighty chief to mourn in hell."

If all the spirit of the passage has been pressed out in the operation, of what importance is that? Hamlet was made to end with a song, and Tate concludes Lear by marrying Cordelia and Edmund, and making Lear dance at the wedding.

Rowe was followed by England's Voltaire, the brilliant and superficial Pope. Pope praised in the highest terms Shakespeare's characters, his power over the passions, his knowledge of the world and his penetration into human nature; then he turns round and says that as "he has certainly written better, so he has probably written worse than any other writer;" and he accuses him of having lowered the tone of his plays to please the public. In Pope's Preface and also in Warburton's, the idea that Shakespeare's plays have been defaced with innumerable blunders and absurdities, and even whole passages and scenes by the interpolations of the players, is strenuously insisted on. Their admiration for Shakespeare was not an intelligent admiration of the real Shakespeare, the result of a true comprehension of the character of his plays; but it was an admiration of an ideal Shakespeare of their own, formed by correcting in conformity to it or rejecting wholly, all the parts of Shakespeare that fell below their conventional standard of elegance or rose above their comprehension. Warburton, indeed, deprecated the application to Shakespeare of "that sort of criticism raised mechanically upon the rules which Dacier, Rapin and Bosser collected from antiquity," or of "those crude and superficial judgments," "that worst sort of critical jargon, now so much in vogue, that namely which looks most like sense." But Warburton could criticise the critics better than perform the critic's duty himself.

The critic who evinced the most good sense in his comments upon Shakespeare was Theobald, the "poor, puddling Tibbald," the first hero of the Dunciad. It was the very modesty of Theobald that enabled him to surpass the efforts of his illustrious rivals. His modesty saved him from adopting the domineering, pedagogueish air which was then considered the proper manner for a critic sitting in judgment upon an author, but which, in fact, is destructive of the sympathy and faith necessary to the comprehension of a work of genius.

The great Sir Oracle of the day, however, was Dr. Johnson. If the character of that "masterpiece of criticism," his famous Preface to his edition of Shakespeare was to be

summed up in one phrase, we should have to describe it as an eminent example of that second kind of criticism that Warburton complains of—"the jargon that looks most like sense." Shakespeare's constant shining had by this time so won the eyes of men that the authority of the classic models was beginning to be weakened, and suspicions had commenced to arise that what excited such pleasure could not be such a violation of true dramatic propriety or so devoid of artistic skill in its composition, as had been imagined.

So Dr. Johnson, though "frighted" at his own "temerity," laboriously shows that the drama is under no necessity of possessing, as essential to truth or completeness, the Unities of Place or Time,—the sacred rules which Shakespeare had most sinned against. The old standard having been set aside, some new art standard must be found which Shakespeare must be supposed to have aimed to conform to, and by which he is to be tried. Such a standard he makes of the closeness of the copying of nature and success in the instruction of life. He sees in Shakespeare's plays nothing but a holding of the mirror up to nature, an attempt at literal delineations of actual objects and of common experiences of life,—faithful word-pictures in the manner of the Dutch School. "Shakespeare talks the language not of poets but of men," Dr. Johnson says, and when he meets with anything outside the ordinary occurrences of the world or the regular exhibition of the feelings, he is unable to comprehend it, and falls to berating Shakespeare. "Shakespeare's plots," he says, "are often so loosely designed, that a very slight consideration may improve them, and so carelessly pursued that he seems not always fully to understand his own design." For example, (for the test of the meaning and the truth of general remarks is their application in particular cases,) Johnson *objects* to the conduct and the plot of Hamlet that "Hamlet by his feigned madness did nothing that he might not have done with the reputation of sanity;" that "Hamlet is through the whole piece rather an *instrument* than an *agent;*" that "after he has convicted the King he makes no attempt to punish him," and so on.

Truly those who prefer the play of Hamlet with the part

of Hamlet *out*, have learned critics on their side. The only thing that Johnson had to say in praise of Hamlet's pretended madness, viz.: that "it makes much mirth," shows an equal insight into Shakespeare's creations. Cymbeline is called "unresisting imbecility," and the most praiseworthy thing he finds in the Merchant of Venice is the happy manner in which the two plots are united! Although Johnson had formally thrown off allegiance to the unities of place and time, the old trick of bowing to them is continually reasserting itself, and most of the other conventionalities still held him fast. For Shakespeare's violations of the proprieties he supplies the excuse that "he had no example of such fame as might force him upon imitation nor critics of such authority as might restrain his extravagance." We forbear the comment which Dr. Johnson's criticism of Hamlet provokes. Johnson having cut loose from the old moorings of criticism, and having found no other stable anchorage, swung to and fro, like the floating island of classic myth, with every gust of feeling or ideas. But more than this, "the great moralist," great as were his talents on certain sides, was wanting in the depth of inward thought, in the poetic sensibility, and the imaginative flight that was requisite to discover the secret of Shakespeare's creations. Johnson could see only the outside. His criticism, therefore, could not well be otherwise than inconsistent, coldly moderate, and superficial.

The numerous editors and commentators that succeeded Johnson, each of them doing his best "to elucidate Shakespeare into obscurity," followed, for the most part, in the footsteps of their predecessors. Some of them, however, and nearly all of the occasional critics and less ambitious essayists, show some advance toward the right comprehension of Shakespeare. Yet as late as 1784 we find Mr. Wm. Richardson, Professor of Humanity at Glasgow, publishing an Essay called "Cursory Remarks upon Tragedy," in which he says: "With an impartiality which becomes every man that thinks for himself, let us allow him (Shakespeare) great merit as a comic writer, greater still as a poet, but little, very little as a tragedian." Even as late as almost the end of the last century, the custom was still in vogue of talking about

Shakespeare's nonsense, indecorums, irregularities, and lack of refinement and art.

At last, under the simultaneous leadership of Coleridge in England, and Schlegel in Germany, it was discovered that Shakespeare's plays had principles and laws, and that when the right central point was taken as the point of view, the seeming aberrations, as in the case of the planets, were all in conformity with law, and the strangest perturbations were the strongest confirmations of the real order. The dramas of Shakespeare were found to have not only a systematic plan and unity of structure, but one conceived and executed with profound art, though very different in construction from the classic models. This view has spread until there is now no literary conclusion more firmly established, no literary opinion more widely diffused, and the surge of the wave has beaten the name of Shakespeare indelibly into the highest tablet of fame.

What influence has he exerted upon the world? This is a question that must be asked and answered in regard to every eminent man. Every one, if asked the question in regard to Shakespeare, would say that his influence has been of course immense,—that it cannot but have been immense. Yet almost every one, we think, if asked to explain the convenient indefiniteness of that "of course," if asked to tell some particular way in which Shakespeare has much affected the world, would be very much puzzled to answer.

In the Essay on the Genius of Shakespeare, in the last volume of Richard Grant White's edition of Shakespeare,—an Essay, as a whole, most admirable for the completeness and good judgment with which it treats the subject,—some of our readers may have been surprised at seeing it asserted that *no* direct influence has been exerted by Shakespeare upon the great movements of the world; that they would have gone on without him very much as they have with him; that Shakespeare revealed no new truth, founded no school.

In this somewhat startling assertion there is a pretty large nucleus of truth. It is an extreme statement of a real fact. It is a fact, and a curious one, that Shakespeare's

direct influence in swaying and giving direction to the movement of the world has not been at all in proportion to his preëminence in reputation and genius. Properly considered, however, the fact does not diminish at all the estimate ot Shakespeare's real influence. It is due to the universality ot his genius, and the admirable balance of qualities and just poise of ideas in his works. This character of his works has caused their influence to be distributed pretty equally among all the different currents of progress, and to give simply a forward impulse to all without producing any deflection ot path or any relative change of position among the different parts. His direct and apparent influence has been so little, precisely because his indirect influence has been so great. And as the acquisition of particular facts and truths is of far less value than the increase of mental power, so to have been such excitement to thought, to have given such universal, however indirect, propulsion to speculation and inquiry; to have exerted such a general stimulating effect upon men's minds throughout the last two centuries and a half, as Shakespeare undeniably has done; to have been—to use once more his own noble figure—the fountain to which other suns, repairing in their golden urns, have continually drawn light, is to have done more for the world than to have directly pushed forward some one branch of knowledge, or to have revealed some particular truths or set of truths.

But Shakespeare's influence has not been entirely of this indirect nature. Besides this immense indirect influence, a direct and special influence upon at least one movement of the world has been exerted by Shakespeare. If it may be said that he has founded no school, it is because the form of literary art, of which he is the great exemplar, like the method of scientific investigation which Bacon expounded, has had too mu h general acceptance for those who have adopted it to be distinguished as a *school*. If Shakespeare may be said to have revealed no new truth, it is only so, irasmuch as, like a true artist, he embodied his truths in living forms, leaving to others the work of setting them forth in philosophic statements.

We would ask our readers now to make a little detour

with us, in order that we may conduct them to the proper point of view for seeing what is this special influence which Shakespeare has exerted upon the movement of the world.

The form of art of an epoch must be in close correspondence with its life and its world. These are the materials which art has to build with. Moreover, it is only as an artistic form embodies in itself the principles of the culture of its age, as it contains the elements of the life of the age, that it can have general sympathy and appreciation. A great work is great in its time, and is passed on to posterity by virtue of being the crystallized essence of the spirit of that time. What, now, was the character of the world in which the classic drama came into existence, and what is the character of the modern world, and how far are the classic models forms appropriate to its spirit?

All around the Greek, through the transparent atmosphere, were pure, clear-cut lines of hill and horizon; over his head was the soft azure calm of that wonderful Grecian sky, to him a veritable solid dome, bounding the space above; below, the plain of the earth, enclosed by the stream of ocean.

Greece was the centre of the earth. Little more was known. Little more did the Greek care to know. All that was not Hellenic was barbarian. And as Greece kept apart from the rest of the world, so did each of the different little Grecian communities keep itself as isolated as it could. A jealous autonomy, not merely political, but commercial and social, was the pervading sentiment of each city. The feeling of devotion to the State, or rather city, was intense; the sentiment of the general welfare, or the cause of humanity, hardly existed. It has been remarked, that while the word for philanthropy in almost all the European languages is derived directly from the Greek, philanthropy should not have been at all a Greek custom, or common to Greek thought. The same may also be said of another favorite modern word, the word *sympathy*. The Greeks pass before us, like their gods, on their brows neither sorrow nor anger; in their eyes no speculation; self-sufficing, unheeding, unconscious of aught beside self, in the serene content of existence. With the same cold calmness, without foreboding, without long-

ing, they descend to Hades, obedient to the unavoidable summons of the Fates. Even the emotions of the Greek had something settled—something, it might almost be said, of repose in them. They were the agitations of objective emotion, of simple passions of the flesh or the affections, with an undisturbed depth beneath them; however great the ferment on the surface—not like the self-conflicts and agonies of soul-convulsing and breaking up of the deepest depth of being, which modern life sees.

The Greeks were set between a past too short, a future too long, to awaken consideration for either. The possession of slaves gave leisure for the ease and calm which air and sky invited to. Limited knowledge and experience gave simple and well-defined forms to ideas, and encouraged the habit of idealizing and a taste for ideals. Their very gods had the tangible shape and circumscribed limits of men. Greek life and culture, the classic world, then, was simple, limited, insulated, sharply defined, ideal, with a certain slowness of movement and calm. Ancient art and the classic drama, consequently, had these same traits. They were appropriately projected from such a world into its art. They were the forms into which its genius spontaneously moulded its creations.

Now turn to the modern world. It is a world entirely different in character. It is a world a thousandfold more extended, more complicated. New continents, country on country, nation after nation, each with its different traits, have been added to our knowledge and intercourse. The arched roof fretted with golden fire has opened into a boundless perspective where suns behind suns are the points that dot at immense intervals the infinitely receding space. Through the revelations of Christianity we see our life stretching beyond its earthly close to eternal length. With untiring enterprise and insatiable curiosity we explore every quarter of the globe, every fact of history and of life, every kind of existence, every branch of science. With profoundest questioning and fierce struggle we try to probe earth and heaven, man, self, God. And we find, or put, every event, question, fact, object, in relation to every other. Our world is an infinitely extended web of closest intermesh. The inorganic, the vege-

table, the animal world we see to be the complements of each other, subsisting by virtue of their conjunction, and we see their different members and elements to be all implicated, so that a movement in one sends its circling vibrations through all. A thousand interests knit man to man and nation to nation. We see star drawing star; we see common laws acting upon the miscroscopic mote and the most distant sun; the influences of Pleiades and the bands of Orion are no longer mere poetical figures, but the expressions of facts of science. And our Christian religion with its principles of the omnipresence and immanence of God through all this infinite Universe, His constant care of all his children, and the duty of reciprocal sympathy and helpfulness among all the Brotherhood of Man, gives its powerful encouragement to the same tendency, makes the fact a duty, and from the throne of duty extends and deepens the sway of the fact. Philanthropy, the general welfare, humanity, these are our watchwords. We are no more insulated in time than in space. We are conscious that we are closely compacted behind and before. We look back over the ages of the past as the successive stages of a slow up-climbing growth, a human coral reef, each inch a petrified generation, the aggregate of whose deposits thus far is the height of our age. We look forward into the future to see in anticipating vision the glorious advance of the work, to behold there its consummated perfection. The present is but the brief time during which not even a temporary ownership has fallen into our hands, but a moment's stewardship of the great work, and we hear simultaneously predecessors and posterity crying aloud to us to be true to the trust. So foreign to the modern world is the leisurely movement and repose of the ancient world that we bustle and drive even in our relaxation. What we aim at, is to do a half-dozen things at once, to be in a half-dozen places in a minute. An incessant unrest sways men hither and thither, haunted by doubts and misgivings, at discord with themselves. Uncomprehended longings agitate nations.

> "*Infinite* passion and the pain
> Of *finite* hearts that yearn."

There Robert Browning has struck the key of the great

ground-tone of modern feeling. As for ideals, the modern world has seen too many dissipated, has at once too much and too little knowledge for them to be favorites. Its taste is for the real with all its roughness, heterogeneousness, incompleteness.

Realism, rapidity of movement, the utmost variety of elements and complexity of structure, the closest entanglement and the farthest outreach of sympathies and relations on all sides, the inquietude of conflict with self and of unattainable aspirations,—these are the traits—the direct opposites of the traits of classic life,—these are the traits which distinguish the modern Christian world, and to which all the other branches of art, architecture, painting, music, have involuntarily conformed themselves, and to which literature most of all needs to be in correspondence. To mould and compress the larger products of the modern mind into forms so alien and so cramping as those of antique art, is like trying to make a Victoria Regia grow into the shape and size of a violet.

If even partial success is gained, it is gained at the cost of the destruction of the ethereal essence and vital spirit of that which undergoes the unnatural operation. Yet this was what the great French masters of the seventeenth century, fascinated by the beauty of the masterpieces of antiquity, attempted to do. With all their talents they could only, as was to be expected, galvanize the dead forms into an artificial life. Unfortunately, even this modicum of success, in conjunction with the influence of the ancient models and the classical *furore* that followed the revival of learning, was enough to give these alien forms for more than a century the sway of almost the whole literary world. They became the moulds of its thought, and stunted its most promising effort. In the pompous faded court-dress of poetical diction, feeling, truth and imagination found themselves helplessly and inexorably buried. In the close confinement of the unities and the "bienseances," imagination was stunted, the living representation of real life became impossible. The difficulties of outward form consumed in ingenious vanquishing of them the best energies of the mind.

The picture which the literature of the eighteenth century

presents, with Addison's Cato as "the most perfect of English Tragedies, Pope as the most elegant of poets," Voltaire the King of the French stage, and Gottschid the great luminary of German letters, was the natural fruit of such an unnatural graft. To break the paralyzing spell which the classic models exerted over literature for so long a time and awaken it to fruitful activity, there was needed some preëminent master to display, together with a genius superior to that of the classic authors, the example of a successful form of composition not bound by conventional restraints but conformed to the real characteristics of modern life.

This critical need Shakespeare met. With the true sympathy of genius Shakespeare had felt the tendency, the already emerging characteristics of modern life, and in his dramas he had stretched out the dimensions to the full breadth of the modern world; reproduced in them all its multitudinous diversity of forms and aspects, its intricate interweaving and limitless extension of action and reaction, its restless activity, its warring passions and infinite longings, and then secured the unity which art requires by blending all in "sweet contrast" and "divine respondence," like the hearse-like base and jocund carols, the soft breathings and clashing peals, the surging crescendos and dying diminuendos of one of Beethoven's Symphonies, into one full harmony.

Just as fast, consequently, as Shakespeare's works won the acknowledgment of their own artistic merit, just so fast they compelled a reconstruction of the principles of modern literary art, just so fast they have freed literature from the yoke of the French classical school, and from the blind reverence for antiquity that once threatened to crush life out of modern poetry, and just so fast they have led to the recognition of the true dramatic and poetic forms which are native to the spirit of modern culture. To this influence of Shakespeare's works, the rich crop of fresh and true poetical beauty, sympathetic to the feelings and in harmony with the ideas of modern life, which the last seventy-five years have added to the stores of English literature, is greatly owing. The connection between the recognition of the art of Shakespeare's dramas and the study of them in the new light, on the one

hand, and the Lake School and its relations to the traits which English poetry has taken on the last three-quarters of a century, on the other hand, needs only to be hinted at.

Germany is still more indebted to Shakespeare. Shakespeare's influence in evoking the famous *Sturon und Dornng* period, and in developing and giving direction to the new national and natural school of German literature of which those works were the commencement and Goethe's and Schiller's masterpieces the matured fruit, can hardly be over-estimated. Shakespeare was the victorious banner which Lessing waved in his onslaught upon the formality and artificiality of French classicism, the imitation of the imitation of which had so blasted German literature with sterility. A short extract from an Oration on Shakespeare delivered by the young Goethe before a club of fellow "Shakespeare bigots" will perhaps best give an idea of the enthusiasm which Shakespeare excited at that time. "The first page of his that I read," says Goethe," made me his for life. And when I had finished a single play, I stood like one born blind on whom a miraculous hand bestows sight in a moment * * * I did not hesitate for a moment about renouncing the classical drama. The unity of place seemed to me irksome as a prison; the unities of action and of time burthensome fetters upon the imagination. I sprang into the air, and for the first time felt that I had hands and feet. And now that I see how much injury the men of rule did me in their dungeon, and how many free souls still crouch there, my heart would burst if I did not declare war against them, and did not seek daily to batter down their towers."

Later, in giving an account of the origin of *Goetz von Berlichingen*, his first great work, Goethe assigned the "expansion of his mind produced by an increasing interest in Shakespeare," as a principal cause. The elder Schlegel called Schiller's Robbers a direct imitation of some parts of Richard the III. Though it is hardly fair to call it that, yet it may be said that there is an evident attempt to seize upon Shakespeare's manner as a whole, and that not only this but all Schiller's Dramas, however varying in form, are more or less of the school of Shakespeare. There was hardly an author of the

period eminent in German literature who did not give Shakespeare some service, either that of translation, commentary, study or imitation. In addition to the names of Goethe and Schiller, those of Wieland, Tieck, and the two Schlegels will readily suggest themselves. To all the young Germans of that day trying to escape from the house of bondage of French classicism, Shakespeare was the guide whose lead they followed to the land of Nature and of Freedom.

Half a century later, we find Shakespeare rendering the same service to young France. It was the performance of several of Shakespeare's plays in Paris, in 1827, by a company of English actors, from which Alexander Dumas dates the awaking of the genius to dramatic composition. It revealed to him a new life. It inspired him and several of his friends with the resolution of working in the French stage the reform which it so much needed, and determined their course into the channel of romanticism. The members of the *Cenacle* made Shakespeare the object of devoted study and enthusiastic admiration. Albert de Vigny and Victor Hugo, the other two triumvirs of L'Ecole romantique, have both published translations of Shakespeare's plays. As before to Lessing and his coadjutors, so now to the writers in the Globe Shakespeare was the strong defence and magazine of arms in their insurrection against the narrow critical canons of classicism.

Here, then, in this work of Shakespeare's in exciting and impelling the literary revolution which has swept sucessively over England, Germany and France with such happy results;—the revolution to which we owe it that poetry has no longer to pattern after the Cid and Athalie and Aristotle's rules, but have been sent to search after and garner up whatever is freshest, strongest, deepest, most suggestive, of most power to charm or touch the heart of man in its manifold capabilities and mysterious phases, and is left free to choose as its embodying form whatever one will best exhibit the contents and best body forth the spirit of its theme and the breath of its time,—in Shakespeare's work in exciting and impelling this revolution in literary art, is, in

addition to the great general indirect influence which has been his, a most powerful *direct* influence which he has exerted upon a most important movement of the human mind; and in the establishment of the fundamental difference between the requirements of ancient and modern art and of the true dramatic and poetic forms which are natural expressions of modern life, is a valuable truth for which also we are indebted to Shakespeare.

Three centuries ago, Shakespeare first opened his eyes upon the spectacle of this earth. Of the world of that day there is now very little that the mists of time have not sadly obscured. Its wars, questions, monarchs, statesmen, are remembered not much more than by name. The authors who were Shakespeare's contemporaries are chiefly known by the reflection of his own fame. We talk of Beaumont and Fletcher, "Marlowe's mighty line," and "dainty Lyly" and "rare Ben Jonson," but there are very few that ever read them. Even on Spenser and Bacon has the same fate in great measure fallen. But Shakespeare is as fresh as ever, more living than ever. Poet after poet has succeeded him, poets of great and varied genius. But there is none of them that, compared with him, will not serve to exhibit more conspicuously the unsurpassable proportions of Shakespeare's heaven-touching and myriad-peaked structure. He has invaded every part of Christendom, he has penetrated the Orient, he goes wherever Englishmen or the English language can gain a foothold, and everywhere he commands a unanimous all-hail! But this is but the happy prologue of the imperial theme. Its swelling act is still to come. Every year greatens his sway. He has done more than "bated the scythe's dull edge" of "cormorant-devouring time." He has made the dread weapon his tool; its master, his minister. And when Macaulay's prophesied New Zealander shall stand by the ruins of London's bridges, Shakespeare's structures shall still shine forth in unblemished beauty, fresh and strong as the most ancient heavens!

ART. III.—1. *Histoire médicale des maladies epidémiques.* OZANAM, Paris.

2. *Rapport á l'Académie de medécine au nom de la commission de la peste et des quarantaines.* Paris, Bailliére.

3. *Treatise on Febrile Diseases.* Dr. WILSON. London.

4. *A brief History of Epidemical and Pestilential Diseases.* By NOAH WEBSTER, London.

5. *An Inquiry into the Laws of Epidemics.* By J. ADAMS.

6. *On Epidemic and Pestilential Diseases.* MACLEAN.

7. *On the Remote Cause of Epidemic Disease.* Dr. JOHN PARKER. London.

LET man boast as he will of his knowledge, there will always be many of the phenomena of nature which he cannot understand. This it is idle to deny, for nothing is more easily proved. Accordingly, it is those who know most that are most willing to admit that there are many things of which they are ignorant. If we examine the works of the greatest thinkers, we shall find, in nine cases out of ten, that in proportion as their researches have been extensive and profound, have they been modest and unassuming in communicating the results of those researches; if, upon the other hand, we examine the works of smatterers and charlatans, we shall find that their arrogance and pretensions are boundless.

In nothing is this contrast more forcibly illustrated than in comparisons of the moderns with the ancients. Philosphers like Copernicus, Newton, Leibnitz, and Kepler, do justice to the ancients; instead of affecting to despise them, they express their admiration for the results they attained in science and the arts, as well as in literature and oratory, and give them credit for much that must have been destroyed by the ravages of time. But it cannot seem strange after all, on reflection, that those who are no philosophers pursue the opposite course; they have not taken the trouble to investigate; and because they do not know what the ancients were, they take it for granted that they could not have been otherwise than ignorant, seeing that they lived at such a remote

period of the world—so long anterior to the great improvements made in modern times.

That the medical faculty are by no means exempt from this weakness, is but too well known; they are afflicted with it just in proportion as their knowledge and talents are limited. The greatest physicians, like the greatest astronomers, have studied the ancients; they could not have done so without admiring them, and accordingly they do them homage as benefactors. This is true, for example, of Sydenham, Cullen, Hunter, Boerhaave, and Abernethy; men whose superior knowledge of the healing art is beyond question. Inferior physicians have also written on medicine; many do so at the present day; but what do they teach us?—what report do they make? If we are to believe them, the best who practised medicine before their time were but blunderers, although a few were doubtless very respectable, considering that they had the misfortune of living in a benighted age. Whatever their knowledge was, however, it was but ignorance compared to that of the physicians of the present day. It follows, then, that if pestilences do not rage now as they used formerly, it is because the modern physician knows so much more than the ancient physician; nay, it would seem as if the plague and other malignant maladies were aware of this superiority on the part of our modern physicians, and therefore stayed away, knowing that they could not expect to obtain any foot-hold in the midst of so much knowledge!

None have higher respect for the medical faculty than we; and we could mention physicians in our principal cities who would compare favorably in professional knowledge and skill with the best in the world. At the same time, far from agreeing with the arrogant class of writers alluded to, we think that no science has been less improved by the moderns than that of medicine. If it were possible to confront the most learned physicians of Europe and America with Hippocrates, Galen, Aetius, Paulus Ægenita, Aretæus and Celsus, we are convinced that the latter could show that the boasted "modern improvements" are not of much importance after all, and that if epidemics do not rage now so destructively as they used formerly, it is not be-

cause modern physicians have a superior mode of treating them.

Those who boast of the great progress made in medical science seem entirely to overlook the fact that epidemics have raged in the ancient as well as in the modern world at very unequal intervals. Sometimes centuries passed without any general epidemic of a particularly destructive character; at other times several epidemics occurred in the course of one century, nay, in the course of a decade. In all Greek literature we only read of two epidemics—one at Troy and the other at Athens. Homer beautifully alludes to the former in the first book of the Iliad,* and Thucydides graphically describes the latter.† We have also accounts of epidemics which occurred at Rome and Carthage alternatively; but the worst that mankind appear to have suffered from since the plagues of Egypt recorded in the Old Testament, were those of the fourteenth, fifteenth and sixteenth centuries. So late as the beginning of the eighteenth century (1720) the plague committed frightful ravages in Europe. If it has not since appeared in the West, it is by no means certain that it never will again, since it had previously been absent more than once for a much longer interval, and then raged with redoubled fury.

That the advance of civilization exercises a powerful influence in staying the progress of epidemics, is beyond question; there is no better preventive of the spread of disease than cleanliness; nor can anything contribute more powerfully to disseminate an infectious or contagious disease than filthiness. This fact is proclaimed by writers of the present day as a great discovery, whereas it was insisted upon by Hippocrates more than two thousand years ago. Judging by the reports of modern Boards of Health, one would suppose that the virtue of cleanliness had never been thought of before their time; whereas the truth is, that far more attention was paid to it not only by the Greeks and Romans, but by the Jews of Moses' time. Each of the former had been

* Lib. i. 50.

† *De Bello Peloponn.*, lib. ii.

in the habit for ages of taking their daily baths. Those baths were provided at the public expense for all classes; none were so poor but that they could bathe daily, and those who failed to do so were stigmatized as filthy and lazy.

But can this be said of the happy people of the present day? What proportion even of those called the respectable class bathe daily, or even weekly? It is to be presumed that those who take care to keep themselves clean, will not allow their residences or even streets to become filthy; it will be admitted at least that they are more likely to keep their houses and streets clean than those who are too indolent to wash themselves. Judged by this test, the Greeks and Romans should be regarded as at least as clean as any modern people. But we have not to depend on mere inference; sufficient of their works still remain to prove that they took far more care of the public health in their large cities than modern corporations do. Their system of sewerage alone would afford sufficient evidence on this point; let any one capable of the task compare it with certain systems in use at the present day, and then say how much we are indebted to modern improvements in cleanliness for the immunity which we enjoy from the desolating pestilences of former times. Those who thus reflect and examine the records of the past will readily admit that there are other causes for this immunity; that if we do not suffer as our ancestors did it is not because we are so vastly superior to them as our mutual admiration societies would have us believe.

When Homer tells us that Apollo afflicted the Grecian army with a grievous pestilence because Agamemnon had insulted his priest, he simply means that the heat of the sun (Apollo) was unusually intense, that sanitary measures had been neglected in the Grecian camp, and that a pestilence was the result. In this allegorical language the poet embodies precisely the same views expressed by Hippocrates in his Aphorisms. Nor is this the only instance in which Homer illustrates the views of the father of medicine. In several instances the poet attributes epidemics to certain conditions of the atmosphere. Thus:

"As *vapours* blown by Auster's *sultry* breath,
Pregnant with plagues, and shedding seeds of death,
Beneath the rage of burning Sirius rise."

Pope's Translation, Book v. 1058.

Again:

"Not half so dreadful rises to the sight,
Through the thick gloom of some tempestuous night,
Orion's dog (the year when autumn sways),
And o'er the feebler stars exerts his rays:
Terrific glory! for his burning breath
Taints the red air with fevers, plagues, and death."*

Ib., Book XXII. 37.

Hippocrates also frequently indulges in metaphorical language; he occasionally speaks of the atmosphere as of a divinity, on account of the wonderful influence which it exercises on all nature. For this he is denounced by some of our modern sages as "superstitious," although Galen, who wrote nearly two thousand years ago, fully explains his meaning, proving that his great master was not superstitious, but that he was in the habit of using the term *divine* (τὸ θεῖον) in the sense of wonderful and admirable; not in the sense of inscrutable or hidden.† Cullen and Hunter understood Hippocrates in the same light; so does Sydenham, whom his countrymen style, not undeservedly, the modern Hippocrates. Like his master, the great English physician thought that the public health was much more dependent on atmospheric changes than on unusual heat, cold, or any other cause. "For the constitutions of different years," he says, "are various; yet they do not depend upon the degree of heat or cold, of dryness or humidity, which accompanies them, but probably result from some *occult* and *inexplicable* changes wrought in the bowels of the earth itself, by which the atmosphere is contaminated with certain effluvia, which pre-

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* ἀρίζηλοι δέ οἱ αἰγαὶ
φαίνονται πολλοῖσι μετ' ἄστρασι νυκτὸς ἀμολγῷ·
Ὃν τε κύν' Ὠρίωνος ἐπίκλησιν καλέουσιν
Λαμπρότατος μὲν ὅγ' ἐστὶ κακὸν δέ τε σῆμα τέτυκται,
Καί τε φέρει πολλὸν πυρετὸν δειλοῖσι βροτοῖσιν·

† Non quæcunque causas habent abditas et obscuras *divina* vocamus; sed ubi admirabilia videntur duntaxat.

dispose the bodies of men to one or other form of disease. This predisposition continues during the prevalence of the same constitution, which in an uncertain period of time is superseded by another." *

But to the philosophers of the present day nothing is "occult" or "inexplicable;" therefore Hippocrates, Galen, Sydenham, and others like them, who admit that there are some things which they do not understand, must be wrong! Be this as it may, it is certain that the testimony of all the great historians of ancient and modern times strongly favors the theory that the atmospheric influence is the most powerful in producing epidemics, for by no other theory can the fact be accounted for that pestilences frequently attack the lower animals before they attack man; and there have been not a few instances of the vegetable kingdom having been smitten with a general blight before any animals were known to suffer. In speaking of one of the great epidemics that prevailed at Rome, Livy tells us that "the pestilence which the year before had fallen on the cattle, in the present year attacked the human species. Such as were seized with it seldom survived the seventh day; those who did survive lingered under a tedious disorder which generally turned to a quartan ague. The mortality was greatest among the slaves, of whom heaps lay unburied on all the roads. Nor were there conductors of funerals sufficient to bury even the people of free condition. The bodies were consumed by putrefaction, without being touched by the dogs or vultures; and it was universally observed that during that and the previous year, while the mortality *of cattle and men* was so great, no vultures were anywhere to be seen." †

The same historian speaks of several other epidemics whose characteristics fully sustain the views of Hippocrates as interpreted and sanctioned by Galen and Sydenham. Referring to the pestilence which broke out in both armies during the siege of Syracuse by Marcellus, 213 B. C., Livy tells us that it occurred not in the warm weather of summer, but in the

* *De Morbis Epidem.*, Sect. 1. cap. 2.
† Livy, lib. xli. c. 21.

coolness of autumn. "At first," he says, "persons sickened and died *owing to the unwholesomeness of the place;* afterwards the disease spread by infection, so that those who were seized were neglected or abandoned, and died, or their attendants contracted the disease."* Nor is there anything in Thucydides' description of the plague at Athens that leads to a different conclusion.†

Of all American writers who have written on epidemics the one who has most fully investigated their causes is Noah Webster. It is true that some of his theories are rather fanciful; but in general the conclusions at which he arrives are sound. Mr. Webster carries his "pestilential principle" a little too far, for he attributes to it the origin, not only of epidemics, but also of earthquakes, volcanoes, and meteors; and he is of opinion that it is strongly influenced by comets. "All the comets," he says, "which have approached this earth in their passage to and from the sun, especially those which have passed very near us, have been preceded, attended, and followed by most extraordinary effects, as great heat and drought in summer, and severe cold in winter; deluging rains, violent tempests and unusual tides. They occur so uniformly with the appearance of these bodies, and for some months preceding and following, as to leave no room to question the influence from which they proceed."‡

This is attributing rather much to the comets; at the same time, the author must not be sneered at for it, although the most eminent astronomers and physicians of the present day deny that those bodies exercise any appreciable influence for good or evil, either on the earth or its inhabitants. We are bound to remember that astronomers and physicians of much greater eminence entertained the opposite view, including Kepler and Boerhaave. It is true that neither regarded the comets as entirely so potent in their influence on the earth as Noah Webster maintains, but both, and many others, believed that they certainly cause some "commo-

* Livy, lib. xxv. 26.

† *De Bello Pelopon.*, lib. 11.

‡ Brief Hist. of Epidem. & Pestilent. Diseases, vol. ii. p. 22.

tions" on the earth. But altogether independently of the views of others on the subject, the opinion of Webster is entitled to consideration, from the careful and extensive researches of which it is the result; for he presents us an accurate historical account of all the great pestilences, ancient and modern, on record, together with a large mass of statistics and other facts illustrative of their characteristics. Those who have not taken such pains, but merely depend on what others think, have no right to condemn a conclusion arrived at by such means. But whether Webster is right or wrong in his opinion of the influence of comets, it is certain that there is much force in his reasoning on the cause of epidemics. "One thing," he says, "is very evident; that what I denominate a pestilential principle does at certain times pervade, not only the element of air, but the water also. The proofs of this are abundantly numerous and convincing. In all the great plagues which have afflicted the human race, other animals, as horses, cattle, sheep, sometimes cats, dogs, and fowls, together with the fish in rivers and the ocean, and even vegetables, have borne their share in the calamity. The pestilential principle has extended to every species of life. The beasts of the field perish with deadly epidemics; the fish die on the bottom of rivers and the sea, or become lean and sickly; while corn is blasted on the most fertile plains, and the fruits in gardens and orchards wither, or fail to arrive at their usual state of perfection." *

These are strange facts; to many almost incredible; but they are nevertheless true. What then becomes of the "stamping out" theory of our modern boards of health? It may be very absurd to attribute our epidemics to the comets; but it is hardly less so to attribute them to the condition of the streets and of the houses of the poor in large cities. That this condition exercises a powerful influence is, as we have already remarked, very true. Filth not only increases the virulence of a disease when it exists; it frequently engenders disease. But it is by no means the sole cause of epidemics; it can hardly be pretended that it is filth that causes pesti-

* Hist. of Epidemics, vol. ii. p. 153.

lences among cattle alike on extensive plains and mountains; it is not filth that causes the birds of the air to die by thousands; it is not filth that produces a similar mortality among the fish of the sea; much less is it filth that causes vegetables to wither with mildew; for even the most disgusting kinds of it rather improve than injure them.

It is, indeed, highly laudable to encourage cleanliness among the poor; neither the lawgiver nor the moralist can devote his energies to a better object; for whoever teaches people to observe cleanliness in their habits elevates their tastes, and consequently their aspirations. The most pious commentators on the Bible admit that the laws of Moses, which enjoin cleanliness as a religious duty, were promulgated with a view to their moral and sanitary influence. At the same time, Moses does not say, like our modern philosophers, that cleanliness affords protection from epidemics; and much less does the great lawgiver pretend that epidemics can be "stamped out" according to the modern fashion. The history of those diseases proves that in a thousand instances they have committed their ravages in towns and cities at periods when most attention was paid to cleanliness; whereas, upon the other hand, the same towns and cities have enjoyed complete immunity when most filthy.

It is well known that the most contagious and malignant diseases have often ceased their ravages as suddenly as they made their attacks—filth having accumulated in the meantime. This has occurred at all seasons; during the heat of summer as well as the cold of winter. Even the cholera has disappeared from many large and crowded cities in the hottest weather, although, in general, heat seems favorable to its propagation. The plague, the most malignant and contagious of all diseases, has often disappeared with equal suddenness, and during the accumulation of an unusual amount of filth. When it first appeared in London the magistrates issued an order, which was approved by the College of Physicians, for the strict imprisonment of the sick, or of those supposed to be sick, in their own houses. This was accomplished by watchmen, who attended night and day at the doors of the infected houses, and this was continued for at least a

month after all the inmates were dead or recovered. In order that all should avoid the doomed house it was ordered to be "marked with a red cross of a foot long, in the middle of the door, evident to be seen, and with these usual printed words, that is to say, *Lord have mercy upon us*, to be set close over the same cross, there to continue until the lawful opening of the same house." *

This cruel and barbarous treatment would seem incredible were it not fully attested by historians. "From that moment," says Lingard, "the house was closed; all egress for the space of one month was inexorably refused, and the wretched inmates were doomed to remain under the same roof, communicating death one to another. Of these many sunk under the horrors of their situation; others, driven by despair, eluded the vigilance or corrupted the fidelity of the watchmen, and by their escape, instead of avoiding, served to disseminate the contagion." †

During the months of July and August "the weather was sultry, the heat more and more oppressive." It was therefore generally thought that the plague was caused by the unusual heat, and accordingly it was expected that as soon as the weather grew cool the pestilence would disappear. Experience proved, however, that this was a mistake. "September came," says Lingard; "the heat of the atmosphere began to abate; but contrary to expectation, the mortality *increased*. Formerly a hope of recovery might be indulged; now infection was the certain harbinger of death, which followed generally in the course of three days, often within the space of twenty-four hours." ‡

It may be said that this increased virulence and destructiveness was caused by the accumulated filth. That the filth had accumulated is beyond doubt; but it is equally unquestionable that it was not the sole or even the chief cause of this increase. More than ten thousand persons died during

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* *Orders by the Lord Mayor and Aldermen concerning the Infection of the Plague*, 1665.

† Lingard's Hist. of England, O'Shea's edition, New York, vol. xi. p. 283.

‡ Ib., p. 286.

the week ending September 20—a much larger mortality than that of any week during the sultry, oppressive heat of summer. Even the authorities began to despair at seeing the disease spreading and becoming more and more fatal as the weather became cool; and if they had been ever so energetically inclined, it was impossible to get men for love or money to clean the infected streets. But while despair pervaded all classes, the disease suddenly ceased its ravages; so that in a few weeks those who fled with terror began to return with joy and confidence. "Many who made most haste in retiring," says Dr. Hodges, "made the most to return, and came into the city without fear; the houses which were before full of the dead, were now again inhabited by the living; the shops which had been most part of the year shut up, were again opened, and the people again cheerfully went about their wonted affairs of trade and employ; and even what is almost beyond belief, those citizens who before were afraid even of their friends and relations, would, without fear, venture into the houses and rooms where infected persons had but a little before breathed their last; nay, such comforts did inspire the languishing people, and such confidence, that *many went into the beds where persons had died, before they were even cold, or cleansed from the stench of the diseased.*'*

There was no "stamping out" here; the most ordinary precautions were neglected, yet the disease continued to decline, and in a short time disappeared altogether; thus fully verifying the views of Hippocrates, Galen, Sydenham, &c. The "occult and inexplicable changes" had taken place in the atmosphere; the "pestilential principle" had become exhausted, the atmosphere had resumed its normal condition, and the public health was restored. It is true that this restoration took place earlier in clean districts than in those in which cleanliness was neglected; in other words, the disease continued to rage in filthy districts long after it had entirely disappeared in districts in which cleanliness was observed. Individuals also who were cleanly and temperate in their habits were much less liable to the disease than those

* Loimologia, or Historical Account of the Plague in 1665. By Dr. Hodges.

of the opposite character, as we shall show more particularly before we close. But no intelligent person who devoted any attention to the characteristics of the malady, pretended that even the utmost cleanliness and the utmost temperance afforded immunity from its attacks.

Hippocrates taught also that, although next to exercise, nothing is more conducive to health than cleanliness, contagious diseases spread much more by means of the intercourse of the infected with each other, than by ordinary lack of attention to cleanliness; and we have some curious illustrations of the fact in histories of epidemics. Thus, for example, the magistrates of Ferrara, seeing in 1630, when their city was visited by the plague, that the habit of shutting up the sick in their houses to prevent the spread of the disease, had the opposite effect in Florence, Pisa, and Milan, resolved to adopt a different course. As soon as they were informed that a person had died of the plague in their city, they immediately removed the whole family to a lazaretto, where all, seven in number, died. But we are informed that although the disease was thus malignant, it went no further. During the year a similar case occurred seven or eight times, and the same course put a stop to the progress of the disease.

Cardinal Gastaldi adopted a similar plan at Rome in 1657. The pope appointed him commissary general of health, with full powers to pursue whatever course he deemed best. At this time the plague had been raging in the city, at intervals, for nearly two years, never entirely ceasing its ravages. Every possible effort had been made to cleanse the streets; disinfecting agents of all kinds were tried; the public streets were redolent of chloride of lime; the churches and monasteries were turned into hospitals; still the disease continued its deadly work. At length the cardinal caused a lazaretto to be constructed in the Island of the Tiber; to this he ordered all infected persons to be sent on the first notice. Those who resided in the same house with them were carefully examined by three physicians employed for that purpose; any found ill were sent to the island, and the remainder were sent to other hospitals, which were also without the city. If any took ill at these, they were imme-

diately removed to the island. There were recovery hospitals besides; these were five miles from the city, situated on hills, and carefully guarded. The result of this course was almost incredible. In little more than two months the city was entirely free from the plague. Under the old system scarcely any of the inmates escaped when the disease entered a house, but it was now found that very few of those removed in a healthy state contracted the malady.*

There is no doubt that the pains taken to cleanse Ferrara and Rome in these two instances as a means of combating the prevailing epidemic, saved the lives of thousands, although they seemed to have failed. Had Ferrara been in an unusually filthy state, or had it been as filthy as other cities were at the same time, the removal of a few infected families would hardly have saved it; and Cardinal Gastaldi readily admits that the attention given to cleanliness at Rome during the six months immediately preceding his accession to office, contributed not a little to crown his efforts with success. He tells us at the same time that it was sufficiently obvious that cleanliness alone would not have banished the disease; that if no other means had been employed, it was more than probable the disease would have lingered in the city for years. But the people of Naples might have said the same, had they pursued a similar course. It was their boast that they used no artifice to purify either their goods or their houses, that instead of having been forced to cleanliness by the plague, like their neighbors, they had never neglected cleanliness so much as during its prevalence, and yet the disease ceased among them quite as suddenly and as completely as it had in those cities in which the strictest laws were enacted and enforced, requiring all to aid directly or indirectly in purifying the atmosphere, and removing every vestige of matter declared by the board of health to be offensive or unwholesome.†

It is not alone the plague that has exhibited these anoma-

* See Dr. Heberdeen, On the Increase and Decrease of Diseases. 1801. P. 180.

† Gastaldi, *De Avertenda Peste*, cap. 10.

lies. The cholera has appeared and disappeared in many cities in Europe, Asia, and America, without affording the slightest evidence of its being influenced by the condition of those cities; in many instances it has proved most virulent and fatal where there was no filth of any kind, as among an army on the march, which did not remain the second night in any one place, and which always chose the most wholesome spot for its camp. Dr. Scott, editor of the Reports of the Madras Medical Board, remarks that "when Cholera is once established in a marching regiment, it continues its course *in spite of change of position, food, or other circumstances.* Its approach to a town has been traced from village to village, and its first appearance in a town has been in that quarter which was nearest the track of its progress." *

The same writer observes that "the prisoners in a jail enclosed by a high wall, have escaped, while it prevailed all around them." None could pretend that it was superior cleanliness, or superior ventilation, that saved the inmates of an Asiatic jail; but similar instances of immunity have been observed in nearly all the great cities of Europe. In Paris, students have been attacked with cholera and cut off in large numbers, in the cleanest and best ventilated schools; while crowds of laboring men engaged at the dirtiest work in close, ill-ventilated factories in the same neighborhood entirely escaped the disease. If we trace the ravages of the disease through the different cities of Europe, we shall find that the cleanest and best regulated have in many instances suffered much more in proportion to their population than the filthiest. There is perhaps no city in the world kept in better order than Paris; it has enjoyed this distinction for several centuries. Upon the other hand, Constantinople has been distinguished during the same period for being more filthy than any other European city; yet it is beyond question that its citizens have suffered far less from cholera than those of Paris.† This will seem the

* Madras Reports, p. xlviii.

† "Comme toute autre, cette maladie a ses périodes d'invasion, d'accroissement et de déclin; comme presque toutes, elle est sujette à des rémittences, à des recrudescences. On se souviendra longtemps à Paris qu'en 1832 le choléra

more incredible to those who believe in the "stamping out" theory of our modern philosophers, when they bear in mind that the religion of the Turks prevents them from adopting the most ordinary precautions for their protection during the prevalence of the most violent epidemics. Believing that none will die of the disease, nay, that none will be attacked by it, except that fate had been ordained for them before the foundation of the world, they look around on its ravages with the utmost indifference. It is true that some Turks are as much afraid of contagion and as anxious to avoid death as any other people; but persons of this character are regarded not only as cowards, but as infidels. Yet the most contagious epidemics, including the cholera, frequently disappear from among them as suddenly as they have attacked them. If the plague has appeared oftener and more recently in Constantinople, and remained longer than in any other city, it should be remembered that the disease is endemic in several parts of the Ottoman Empire.

But it is not of the plague our people are afraid, but of the cholera and yellow fever, and therefore it is to the latter we must devote most attention, although it by no means follows that because the plague is yet unknown in America it will never visit us. No matter which of the recognized authorities on cholera we consult, we shall find that none of them countenance the stamping out theory; all admit that when the disease makes its appearance in a malignant form in any town or city, it cannot be prevented from running its course.* None deny that attention to cleanliness and other sanitary measures exercises a favorable influence on the disease, but it is not more superstitious to encourage a belief in amulets and charms as affording protection from the

étendit rapidement ses ravages du 26 mars au 11 avril; qu'après être resté quelques jours stationnaire, il décrut ensuite et devint à la fois moins commun et moins meurtrier." Ozanam, *Hist. Méd. des maladies epidém.* vol. xi. p. 89.

* "Sous le point de vue des expositions et des localités, le choléra sembla se jouer des prévisions humaines; et, en effet, ce fut souvent *dans les villages les plus salubres et les mieux exposés* qu'il se plut à exercer ses ravages, tandis qu'il laissa à peine quelques traces de son passage dans des lieux *signalés comme des foyers d'infection*." M. Duponchel.

disease than to pretend that water and chloride of lime possess similar virtues.

When the cholera first visited Berlin, that city was the cleanest in Europe; no other city had adopted more careful precautions; yet no city suffered more. Dr. Becker, one of its most eminent physicians, on being written to for information on the subject, writes, as follows, to the London Board of Health, September 29th, 1831. "The appearance of the disease in Berlin, and the manner in which it has spread, is also very remarkable, and affords supplementary evidence in favor of contagion. The conclusion at which I have arrived is, that the efficient cause of the Asiatic, or malignant cholera, is always a virus the production of human effluvia, and which, according to common medical language, undoubtedly deserves the name of a contagious principle; but that this virus, in order to produce the disease, requires first, like the contagion of the small-pox, measles, typhus fever, and even the plague, *a disposition of the atmosphere* favorable to its development; and secondly, a peculiar disposition of the animal economy in every person who is exposed to it. This disposition seems to be brought on by previous disease, particularly bowel complaints, by excessive fatigue, cold, errors in diet, drunkenness, fear, &c. A young physician has been one of the first victims of the cholera, a decided anti-contagionist; he *carelessly exposed himself*, died, and as if his case was to be a warning proof of the fallacy of his opinions, his death was immediately followed by that of his landlord and two children, and the illness of the servant-maid in the house, the only instances of the disease in the street.*"

The most eminent medical authorities of all countries in which the disease has committed its wonted ravages, bear testimony to similar facts. The history of the cholera as it prevailed in Russia, shows that towns and cities which might be regarded as "plague spots," were they judged according to their attention or rather inattention to cleanliness, either escaped altogether or suffered but very slightly; while those

* See Medical Gazette, London, November 12th, 1831.

who made the most extensive preparations for "stamping out," suffered frightfully. In commenting on these facts, Dr. Riemann, of St. Petersburg, who was head physician of the Board of Health during the prevalence of the epidemic in that city, makes the following remarks: "The cholera was brought to Astrachan by ships, and it has spread itself over Russia from Astrachan by the emigration of the inhabitants, principally those of the lower orders. This is the chief cause of its propagation in Russia; it has never shown itself in any case except where it has been brought by travellers who came from infected places. We have not a single instance of a town or village, which, without communication with houses or persons affected, has contracted the disease. Several places, surrounded by the disease, have preserved themselves from it *by a rigid insulation*." *

A clergyman, who witnessed the ravages of the cholera at Saratoff, speaks of it as follows: "In the very commencement of the epidemic, all our four surgeons were seized with it; two died on their journey to Torretzin, and one here. This moment fear and anguish took possession of the public mind. They who could flee from the city fled; and as the malady was not considered contagious, servants, laborers, Tartars, and Russians, were permitted to rush into the country. My congregation, which consisted of 550 individuals, was reduced to 150. Many of the fugitives died on the road, and spread the disease whithersoever they went. From the 10th of August, the malady increased in virulence; the daily mortality of 4 rose to 5, 12, 20, 80, 120, 200, and one day to 260, and *decreased in the same gradual mode*." †

It is generally admitted that no European city enjoys better health, in general, than St. Petersburg; nor is any city kept cleaner. But the cholera seems to have favored it but little on this account. Drs. Russell and Barry tell us in their report of the epidemic of 1831, that the infectious nature of the disease was shown not only by the manner in which it was propagated in various quarters, but also by its

* Vide Copland's Med. Dict. Harper's edition. vol. iii. p. 125.

† Quarterly Review, for November, 1831.

exclusion by a rigid insulation from places which seemed calculated above all others to invite its ravages. All public institutions which were not insulated were attacked, including prisons, hospitals, academies, &c.; whereas those that were insulated, or with which none from the infected districts were permitted to have intercourse, entirely escaped. This was true of the Military Academy at Cronstadt. There were 150 pupils in the Academy, together with a large number of officers of various grades, sailors, servants, &c. On the 19th of June, shortly after the disease making its appearance in the city, the gates of the institution were closed, and as strict a quarantine as possible maintained until the 6th of August (O. S.). The result was that not a single case occurred among the pupils, while the disease continued to rage on every side of them—and often so near that they could hear the moans of the sufferers. Dr. Russell, one of the editors of the St. Petersburg reports, writes a letter to a medical friend in London, in which he mentions the following facts: "The son of a villager in the government of Pensa, who was coachman to a nobleman at fifty versts distance, died of cholera; the father went to the place to collect the effects of the son, and brought home with him his clothes, which he put on and wore a day or two after his arrival at his native village. He was shortly thereafter seized with cholera, and died of it; three women, who had watched him in sickness and washed his body after death, were also seized and died of the disease. The doctor arrived in time to see the fourth case; and finding that the disease spread on that side of the village, he had the streets barricaded on the side where it had not reached, and interdicted all communication between the two sides of the village. In that side in which the disease first broke out, upward of 100 cases of cholera occurred, of which 45 died; but it did not appear on the other side of the barricade." *

If we direct our attention to the first appearance of the disease in our own country, we shall find that it committed its ravages in a manner equally independent of "the stamp-

* London Med. Gazette, for November, 1831.

ing out" theory. Although the notions of our boards of health were somewhat peculiar then as well as they are now, or at least were a year or two since; that is, they thought the disease could not have been introduced except through the means of some intemperate or filthy person. Thus, it first appeared in New York on the 26th of June, 1832; and we are gravely informed, on the authority of the Board of Health of that day, that "the patient, *an intemperate Irishman*, had not been out of the city for some weeks, but was attacked after a debauch and falling into the dock. He came under our care, and died at the Medical mansion in Greenwich Street." *

According to the Board of Health, the city would probably have remained free from the disease had it not been for this "intemperate Irishman;" although it had been raging in Quebec for two weeks previously. But no matter how it was introduced, it attained its climax in twenty-seven days; and then in the midst of the warm, sultry weather towards the close of July, it began to decline in a manner equally unaccountable. All the intemperate Irishmen who had fallen into the dock and were after a debauch had probably been carried off by the disease at this time! Be this as it may, eight days after its appearance in New York some cases of it appeared in Philadelphia, namely, on the 5th of July; but according to Professor Jackson it did not assume the epidemic form until the 29th. On the 6th of August it attained its acme; and then rapidly declined, although the weather was warm, humid and sultry—in every respect such as is supposed to aid most powerfully in propagating the disease.

In the course of one month the disease reached most of the cities of the United States, including Baltimore and Washington. It did not appear in cities according as they were supposed to be healthy, clean, well-regulated, or the reverse, but according as they were near New York, or according as their intercourse with that city was extensive. Thus, for example, it reached Cincinnati, Louisville, Lexington, Madison and Maysville the first week in October, appearing in the nearest the first day of the month; whereas it was

* See *Copland's Medical Dictionary*, vol. iii. p. 127.

near the close of the month when it reached New Orleans, which is supposed to be the most unhealthy city in the United States; and it is certainly not remarkable for its cleanliness.

But let us recall how it visited Charleston. On the 31st of October, 1832, the brig Amelia, bound to New Orleans from New York, was wrecked on Folly Island, about twenty miles from Charleston. Some of the passengers were laboring under cholera. All were landed safely, and placed in well-ventilated houses and in tents. Every possible attention was paid to them, but they continued to sicken and die. A boat's crew came from Charleston to save the cargo; one of them took the cholera and died. The remainder of the crew were sent back to the island to perform quarantine with those landed from the brig; one became ill on the way and died in the boat. Three physicians were sent from the city to attend the sick; also a guard to enforce the quarantine. The whole crew of wreckers consisted of thirteen men; eleven contracted the disease; and eight died of it. A nurse who attended the first of the wreckers that died, took the disease and was sent to the island, where he died. Two of the three physicians took the cholera. There were but four negroes on the island when the infected brig arrived; all were seized with the disease and three died.*

It could not be said that it was filth, intemperance, or debauchery that gave the disease a foot-hold in Folly Island, yet it proved as virulent there as in the most densely populated and most filthy districts of our large cities. As it did not appear that anybody had recently been on a debauch, or fallen into the dock at Folly Island, the New York Board of Health arrived at the conclusion that the unusual sultriness of the weather predisposed the wreckers and the negroes.

No doubt many of our citizens were as well satisfied with this explanation as they were with that of the introduction of the same pestilence into New York a few weeks previously; they were probably not aware that during the intense cold of the previous winter the disease committed

* Vide *Essays on Pathology and Therapeutics*, &c., by Samuel H. Dickson, M.D., vol. xi. p. 92.

frightful ravages in the North of Russia—proving more fatal at St. Petersburg in midwinter than it did at Paris, London, or Vienna in midsummer.

But let us turn whithersoever we may, we shall find that the notions of our boards of health on the nature and cause of cholera are entirely erroneous. Thus the highest average mortality in London during the most unfavorable season, while the city was filthier than it has ever been since, was about 38.5 per cent. of those attacked; the highest average in Paris was about 49 per cent.; whereas the average in the coldest inhabited parts of Russia was 58.6 per cent. At Tiflis three-fourths of those attacked died; at Astrachan two-thirds. In the province of the Caucasus 16,000 were attacked and 10,000 died. When the disease first broke out at Moscow, nine-tenths of those seized perished. In short, in some parts of frozen Russia nearly half the inhabitants were swept away by the cholera; whereas in sultry, oppressive Tripoli only one perished out of every 200. In all the principal cities of Europe every precaution was taken against the disease; in Tripoli scarcely any were taken; the authorities as well as the people relying on the Mohammedan dogma of fatalism, like their brethren of Turkey.

These are facts which cannot be disputed; they are proved by the statistics carefully collected in all parts of the world. How, then, can it be pretended that the scavenger, the chambermaid and the paterfamilias can control the cholera? The spirit-rappers, or the advertising fortune-tellers might as well pretend that they could do so. It may be very well to tell a dirty, ignorant person that if he do not wash himself and keep himself clean he will take the cholera and die of it; it may be excusable to tell our Aldermen and Councilmen that if they do not keep the streets clean the city will be attacked at a particular time by the cholera, and that if they do enforce cleanliness nobody need be afraid even if the disease do visit us in its worst form. This might be excused on the ground that the end justifies the means, since it is beyond question that cleanliness will do good, though it cannot be regarded as a specific for the cholera. But to proclaim such doctrine as one of the great discoveries of modern

science is not merely absurd; it is mischievous. It certainly does more harm than good; in illustration of this we need only say that hundreds have lost their lives because they were led to believe that being scrupulously clean in their person and houses, and strictly temperate in their habits, they need not fear the cholera. Thus a false sense of security led them to expose themselves—often needlessly—and they found, when too late, that the performance of a mere duty, which every person having any pretensions to decency or intelligence, must know he owes to himself, cannot be regarded as a protection against the virus of pestilential cholera.

Nor has the stamping out theory any better foundation as applied to yellow fever. No amount of water or chloride of lime will stamp it out, until nature does so, or until the disease runs its course. Yellow fever, unlike cholera, cannot exist in the cold of winter; its virus is rendered inert by frost. While cholera has committed its ravages in all climates, and has proved as destructive amid the icy mountains of Russia and Norway as in the sultry valleys of the tropics, the yellow fever has never been known in an epidemic form in any of the more northern countries of Europe. But in most countries which it has visited it has proved more fatal than the cholera or even the plague.

Although those medical philosophers of the present day who do not like to extend their researches beyond the most ordinary text-books, regard yellow fever as a modern disease as they do cholera, physicians like Sydenham and Boerhaave were of opinion that it was identical with the pestilence described by Thucydides and of which Pericles died. To many this would appear very absurd, nevertheless there is good reason for it. The Greek historian states that before the disease appeared at Athens it had prevailed at Lemnus and various other places; and that it was introduced to Athens through the Piræus, which was the port of the city, where it suddenly broke out, and then rapidly spread, extending to every street. Thycydides also remarks that it was most fatal in the upper part of the city, where the population was most dense; and that it subsequently attacked other cities, sooner or later according as they had more or less

intercourse with Athens. He gives a full description of the symptoms, and those who have had most experience of yellow fever say that the most prominent are precisely those of the yellow fever. Thus, for example, the historian speaks of the extreme febrile heat, and the pale, greenish yellow (χλωρὸν) and livid color of the surface of the body: also, of the sense of excessive internal heat, apathy, or insanity, characteristic of the disease. But what is most worthy of attention is his description of the copious bilious evacuations, in view of the fact that the ancients regarded the black color of discharges from the bowels as having been produced by bile. Finally he mentions characteristics which are not those of the true plague; thus, for example, he says that "those who recovered had much compassion on those who were dying and those who lay sick, as having known the misery themselves, and *were now in a secure condition, for it never seized the same person twice so as to be fatal.*" *

Lucretius' description of the same pestilence embraces many symptoms which are also identical with those of yellow fever, although the poet represents the pestilence at Athens as having come from Egypt. He describes the febrile condition, the stupor and extreme debility of the patient, the bloody appearance of the tongue, &c. with remarkable precision †

But whether it was the yellow fever that committed such ravages at Athens, or not, whether it was the disease that appeared in the army of Pericles, when he besieged the city of Epidaurus, and finally attacked Pericles himself,‡ certain it is that it has proved as fatal as any other epidemic both in Europe and America.

It has proved more fatal than the cholera, both in this

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* Thucyd., *De Bello Pelopon.*, lib. ii.

† Inde catervatim morbo, mortique, dabantur,
Principio, caput incensum fervore gerebant;
Et dupliceis oculos subfu-à luce rubenteis.
Sudabant etiam fauces, intrinsecus atræ,
Sanguine; et ulceribus vocis via sæpta coibat:
Atque, animi interpres, manabat lingua cruore,
Debilitata malis, motu gravis, aspera tactu.
De Rerum Naturâ, Lib. vi. 1142–1148.

‡ Plutarch, in *Vita.*

city and in Philadelphia. It has visited New York eleven times, carrying off a large number of the inhabitants each time. In 1798, 2,086 died of it out of a population of 55,000. In 1805, so frightful were its ravages in New York that 37,000 fled out of a population of 76,000. Philadelphia was nearly desolated by it in 1793, and again in 1798. During the former year 4,041 persons died in that city, and 17,000 fled, out of a population of 50,000. Dr. Townsend states from personal observations corroborated by statistics, that in 1822 such was the mortality in New York from yellow fever that so late in the season as October the proportion of deaths to the affected was as three to four. The average mortality in Philadelphia, in 1820, was about two out of every three.

In the south of Europe the mortality from the same disease has been still greater. According to the testimony of Dr. Rocheaux, an eye-witness, who was in daily attendance on the sick for seven weeks, the mortality in Barcelona, in 1821, during the early part of the epidemic, amounted to nineteen out of twenty of those attacked. Dr. Killkrest, who had similar opportunities of knowing the truth, says that of 134 cases, which occurred at Murcia, only three or four recovered. The same physician remarks that scarcely any recovered of those first attacked at Gibraltar in 1828. In illustration of the extreme virulence and malignity of the disease, he says that of thirty-five Jews, received into the Civil Hospital, only one recovered.*

There is no city in which the yellow fever has appeared in the epidemic form in which it is not liable to appear again, for that it is an infectious disease is beyond question.

Nothing is more clearly proved than that yellow fever has never appeared spontaneously in New York or Philadelphia, but has in every instance been as much an imported disease as the cholera. It may be true, as Drs. Rush and Miller have said, that certain conditions of the soil near the water in Philadelphia and New York aided in the propagation of the disease when once introduced;

* Vide *Copland's Medical Dictionary*, Vol. III., p. 167.

although even this is denied by the large majority of those who have devoted most attention to the peculiarities of the yellow fever. "Most decidedly," says Dr. Dancer of Jamaica, "it is an imported disease, and is communicable by contagion." To this he adds that "*it has no apparent connection with local causes;* that it has appeared *in the healthiest seasons and localities*, and has *prevailed least in unhealthy and marshy places.*" *

Dr. Charlton, President of the Medical Society of New York, declares in a letter to Dr. Hosack, of the 9th of September, 1803, as the result of long professional experience, that "the disease is of foreign origin," and that he never met with a case of it but which "could be traced to infection *from* the city." Dr. Ledyard, a very eminent New York physician, was first of opinion that the disease was generated in the city, as alleged by Dr. Miller; but Dr. Hosack informs us that he subsequently had reason to change his belief; and that all his own observations at the health office satisfied him that it was exclusively derived from the West Indies.

Nor is it alone individual physicians who are thus decided in their opinion of its foreign origin; the medical societies of all the cities in which it committed its ravages, have been equally positive in arriving at the same conclusion. Thus in a paper drawn up by the College of Physicians of Philadelphia, in 1798, it is stated, "3d. That the principal peculiarities of this fever are its contagious nature, the progress of the symptoms, and the mortality consequent upon it. 4th. That to prove the contagious nature of this disease would be equally useless as to prove the contagion of the plague." In the same paper it is pertinently asked, "Where do we see the first appearance of this pestilential fever? Is it among the marshes to the southward of our city, or in the neighbourhood of our wharves? Is it in the confined alleys, or on the salubrious banks of the Delaware at Kensington? *Is it not always near those places where vessels from foreign countries are found?* Do the fevers common to the country steal on insensibly *infecting one person after another* in a family and

* *Copland's Medical Dictionary*, vol. iii. p. 173.

in a neighbor? Are they equally severe in seasons so opposite as in 1797 and 1798?" *

Dr. Pascalis, of Philadelphia, was of opinion, as well as Dr. Ledyard, at the commencement of the epidemic in that city, that the disease was produced by local causes, and accordingly he is quoted by several writers on the subject, including Dr. Bancroft, as opposed to the theory of contagion. But if he ever entertained any such opinion he soon found reason to change it. "It has appeared to me," he says, "as well as to many practitioners, that a considerable number of the cases could not be traced but to a contagious power in the fever itself; such were the cases of whole families, who seemed *preserved as long* as they had no patient in their houses, and who all perished, *or were sick, without exception, as soon as they admitted among them any one affected with the disease.* This deplorable effect has been seen *in the most wholesome parts* of the town (Philadelphia) and *at any period of the season;* so that in many instances where the disease seemed most universal, by care and *precaution*, people were preserved; while in the country they fell victims to their unreserved intercourse with patients when the epidemic was fast decreasing in every part of the town." †

We might fill pages with testimony equally positive by the most eminent physicians of Europe and America as to the foreign origin of yellow fever—testimony which leaves no doubt on any intelligent, candid mind, that yellow fever is capable of being propagated in any of the cities it formerly visited, altogether independently of local causes. We have shown that the plague and the cholera commit their ravages in a manner equally independent and unaccountable. However much the three great pestilences differ from each other in certain characteristics, it is equally true of all that they cannot be "stamped out" until they run their course. The plague cannot exist where there is intense heat or intense cold; it is equally unknown within the tropics and in high northern latitudes. It can only propagate itself where there is moderate heat; and even where it is most malignant it generally spares persons who are naturally robust and vigor-

* Report of Philadelphia College of Physicians, 1798.

† *Copland's Med. Dict.*, vol. iii., p. 175.

ous, whereas it most readily attacks children, females, and persons of feeble, delicate constitutions, especially the aged.

Yellow fever, on the contrary, generally spares the feeble and debilitated, while it attacks the robust and vigorous with the utmost fury; and accordingly the most experienced and skilful physicians have recommended an abstemious diet as the best protection against the disease. Dr. Rush of Philadelphia recommends a diet of milk and vegetables, adding that the more moderately animal food is taken, if used at all, the better. But what he thinks is still worse than highly concentrated food is liquor in any form; and his opinion is corroborated by the views of those physicians of the West Indies and Spain who have had most experience in the treatment of the disease. "I am inclined to think," says Dr. Rush, "from a variety of facts, that abstinence from every species of strong liquor, wine itself not excepted, during the prevalence of pestilence, is more conducive to the maintenance of health than any other dietetic regulation whatever. It is an established fact, that water-drinkers either escaped the pestilence altogether, or had the disease in a remarkably mild degree. On the other hand, many instances occurred of free-livers receiving the infection in the morning, and having the attack of the fever after a plentiful repast of animal food and wine the following night." *

But we are reminded that we have other subjects to discuss. Although we have been able only to take a glance at the history of epidemics, we think we have shown that the potency of "modern science" is somewhat exaggerated. Far be it from us to deny that the boards of health in our principal cities have done much good during the past two or three years; but it is not the less true, that while doing so, some of their members have often rendered themselves ridiculous. Their weekly bulletins are veritable curiosities. They speak of epidemics as if they were ferocious animals that could be frightened away by chamber-maids, scavengers, "teetotalers" and medical students, but which, if they will visit us perchance, while all our guardians are asleep, are

* *Medical Inquiries and Observations*, vol. ii. p. 49.

sure to respect gentlemen and ladies. They will make their attacks only on the vulgar and unwashed; or if they should attack a gentleman by mistake he need have little fear; they will let him go with only a slight dragging, if he has not recently been indulging in naughty habits. In this case they may carry him off, so that he may serve as a warning to other respectable people who may be supposed also to have their weaknesses.

Naturalists tell us that there are some spots which are carefully avoided by beasts of prey on account of certain peculiarities of the soil, or of the atmosphere, while there are other spots which attract those animals for the opposite peculiarities. Some of our boards of health seem to have taken a hint from this in the construction of their "sanitary maps." If there are any of our readers who have not yet seen the sanitary map of New York, they should procure a copy at once. One has only to glance at this in order to tell the precise localities in which the next epidemic, whether the plague, the cholera, or the yellow fever, is sure to sojourn for a longer or shorter period, according to circumstances; also the precise localities which those epidemics are nearly as sure to avoid. Real estate agents especially, and nervous ladies, would do well, for obvious reasons, to have a copy of this map. If any one dies of an epidemic who does not reside in a black spot, it is not the fault of the white spot—it is clear that the deceased, although hitherto regarded as a gentleman, and consequently exempt from epidemic disease, must have been a filthy or intemperate person, most probably both.

Those who are not aware of the peculiar manner in which New York has been "protected" from disease during the last two or three years, may well regard this as burlesque; but if they will examine some of the reports and bulletins alluded to they will find that we do not exaggerate the facts, which we are called upon to regard as "the teachings of modern science."

But this ridiculous pretentiousness to superior knowledge has a serious side to it. Everybody remembers how much it has been the habit in New York, for some years past, to represent those supposed to have

died of cholera either as intemperate or filthy in their habits. We have ourselves known persons who led a most exemplary life, including clergymen, to have been thus vilified because they happened to die suddenly, lest their wealthy neighbors might be frightened at the idea that they also were liable to die of cholera, or some other epidemic, real or imaginary, as the case might be.

It is but a spurious kind of science that encourages conduct so outrageous. Those who lose their beloved relatives and protectors have sufficient cause for grief without seeing them falsely assailed in this way. Were it even true that their habits were filthy and intemperate, there would be neither propriety nor humanity in proclaiming the fact while those to whom they were dear are still weeping over their corpses. What a strange anomaly it is that frequently the assassin, who pays the just penalty of his crime, not only receives sympathy but is mourned as a saint, while one never charged with any crime is abused in the grossest manner for having died so suddenly and under such circumstances that his death might frighten others!

We are not in any manner opposed to boards of health; we think, on the contrary, that one should be maintained permanently in every large city. We certainly have no unfriendly feeling towards any member of the Board of Health of New York; indeed, there are several members of the Board whom we regard as personal friends. Our only object in the allusions we have made in several parts of this article to the "stamping out" theory, is to show that it is not only erroneous and unscientific, but decidedly pernicious; and if any of its pernicious consequences be obviated by our remarks, we shall consider ourselves abundantly rewarded *sine maleficio ad aliquem*.

ART. IV.—*Official Despatches and other Public Documents.* 1861–1865.

PROMINENT among the many singular features of our late war, and among those which distinguished it from the great European wars of the past, may be mentioned the small

number of sieges which marked its progress, and the fact that in all those operations which may be justly designated sieges, the forces of the Union bore the aggressive part; for although some of the finest armies which the rebel government ever assembled, were launched forth on a tour of Northern conquest, they never settled down before one of our strongholds, and bravely but patiently carried to their legitimate result the tedious operations of a siege. What could not be taken by a few desperate assaults, was passed by or retired from as the requirements of the campaign seemed to dictate.

It is true that many aggressive movements of the rebels have been and still are, called sieges, but if they are properly so called, a new term must be invented to designate those operations in which sapping, mining, a liberal vertical fire, and the protracted and effective use of heavy artillery for offensive purposes, form a leading and an essential part.

Had the rebels made a vigorous and determined attempt to capture Washington, concentrating for this purpose their entire strength and compelling a similar concentration on our part, the resulting operations would have been unrivalled in their grandeur. Grant or indeed any of the generals who were prominent during the later stages of the war, would probably have found an investment by inferior numbers exceedingly irksome, and leaving a sufficient force to hold the defensive lines, would have fallen upon the enemy's flank and rear with the residue, in that style which is so ruinous to well-laid plans. Be this as it may, it is not difficult to explain the peculiarity of our war, to which we have referred, for its causes are apparent to even a superficial observer. We can readily understand why continental Europe is dotted over with fortified places, for each place has a history of its own, while the dense population and high state of cultivation of the country which surround them, render it easy to provision and garrison them when they are supposed to lie in the path of an invading army, if indeed they are not strongly garrisoned at all times to maintain the sway of the ruling dynasty; and it is equally easy to understand why as our forces gradually overran the South, great fortresses did not

loom up in their path, requiring either to be reduced, or to be watched by corps of observation, much stronger than their garrisons. All the elements which are essential to the thorough and speedy fortification of a great country,—well developed material resources, a skilful laboring population, a fully matured policy of defence, and great engineering skill on the part of the responsible head of affairs were wanting; and consequently speedy capture or a retreat followed every attempt of a detachment to hold out in hastily constructed earthworks, against superior numbers.

Having thus glanced at the causes which conspired to determine the character of our war, we are prepared to make the most of those parts of its history which show us obstinate bravery on one side, and a vigorous defence on the other, with a few yards of earth or sand intervening, to heighten the dramatic effect.

Charleston, like most of our Southern seaboard cities, is environed with broad marshes, bordered toward the sea with long narrow islands, some of which are yielding so rapidly to its wash, that they promise before long, to degenerate into overgrown strips of beach, useful only to break the force of the incoming waves, unless, indeed, the same forces which now threaten their destruction, may by some freak of nature be charged with their rebuilding. These islands, desolate as they may appear, are, when properly fortified, well fitted to ward off a seaward attack, and one of them, Fort Moultrie, proved itself a formidable barrier to the entrance of the British fleet, some years before South Carolina and the mother country were discovered to have a common interest in the destruction of a great common enemy. After the capture of the Morris Island batteries, it was from this island that a fire was poured forth which proved an efficient obstacle to the entrance of our own fleet, and threatened to bar its return, if after a contest in the inner harbor it attempted to retire in a disabled condition. The southern boundary of the harbor entrance is Morris Island, whose north end is nearly four miles from the city and 1400 yards from Fort Sumter. The experiments of the rebels early in 1861 had convinced them that at this range that structure could be demolished by a

persevering effort, and they accordingly erected, at a point nearly a mile farther down the island, Fort Wagner, a massive casemated structure, whose plan exhibited more skill than its location, which, however, was determined upon before the full powers of rifled artillery had been developed, and when it was supposed that two miles, intervening between a breaching battery and the threatened fortress, would effectually protect the latter from any material injury.

More than two miles south of Fort Wagner is lighthouse Jules, a narrow estuary separating Morris Island from its southern neighbor, Folly Island, which stretches more than seven miles farther down the coast, and was covered, prior to its occupation by our forces, with a dense growth of timber and underbrush. It was occupied, without resistance, April 2d, 1863, and after the failure of the Navy to capture or destroy Fort Sumter, five days later, was retained, almost without molestation, for nearly two months, when the rebels, having meanwhile placed in position several guns on the southern part of Morris Island, opened a heavy fire upon our pickets, an amusement which was repeated several times at intervals of a few days, with but slight loss, however, to our troops.

Early in June, General Q. A. Gillmore was recalled from Kentucky to assist the navy in its operations against Charleston, and arriving in the department he assumed command in a short order, and addressed himself to the task before him. It was not expected that with a force which the rebels could outnumber two to one, he could beat down all obstacles, and present to an eager public one of the most important seaports of the Confederacy, with a garniture of encircling forts, and guns by the hundred. Sherman did so a year and a half later, but Gillmore could not hope to do it with his small force, and the fact that he was expected by many, simply shows that there were many who did not adequately comprehend the nature of the obstacles which he encountered.

He found matters, however, in a condition which was in some respects highly favorable to the movement which he contemplated. The long periods of inaction of former commanders, and the feeble character of the movements which

they did undertake, had beguiled the enemy into a feeling of comparative security, and impressed them with the belief that our forces were incapable of any effort at all formidable in its character, while the recent unsuccessful attempt of the New Ironsides and eight monitors to enter the inner harbor, had resulted in an increased estimate of the defensive powers of the harbor forts.

Soon after our occupation of Folly Island, a lookout tower had been erected near its northern end, but out of range of the greater part of the rebel fire, and commanding an extensive view of the surrounding country. From it could be watched the movements of the blockade runners, which after passing our fleet, usually lay at anchor near Fort Sumter until morning, when they moved up to the city. During one week in May five vessels were counted in this way, and there was good reason to believe that they did not spend an unnecessary length of time in the harbors after discharging their cargoes, and receiving their loads of cotton. Night after night the dull boom of our guns would be heard rolling in from the sea, but morning showed the long, low hull of the persecuted vessel safely cradled in the harbor, and on one occasion two of these treasonable crafts slipped through the toils of the hunter and reached their destination in safety. As may be imagined, this apparent inefficiency, on the part of our blockading fleet, was severely criticised by those who witnessed its operations from the shore, but it is doubtful whether their strictures were just, on the whole. It is difficult even to discover a lead-colored vessel on a dark night, and still more difficult to pursue that vessel when discovered, in spite of her doublings, which may render useless any preconcerted plan of operations, in which several gun-boats have each a part.

From this wooden tower, Gen. Gillmore carefully studied the country which he hoped to occupy, until he had fully matured his plan, a portion of which was even then being executed; he decided as follows:

I. To place in position on the upper end of Folly Island as many guns as could be well located, and at the same time concealed from the enemy.

II. To make a heavy demonstration on James' Island, which lay between Folly Island and the city, for the purpose of distracting the enemy's attention from the real point of attack—Morris Island—and with the hope that the enemy would concentrate his available force to oppose this feint.

III. To collect on Folly Island all the available troops in the department, without attracting the enemy's attention, and as a preparatory movement to those which were to follow.

IV. A strong brigade was to be embarked in small boats, and conveyed through the creek which forms the western boundary of Folly Island, to Lighthouse Inlet, where it was to land and form a lodgment on the lower end of Morris Island, the batteries defending which were to be engaged and silenced, by the fire of our own batteries, established on the opposite shore, and by the fire of the Navy.

V. To capture and occupy Fort Wagner, and erect breaching batteries against Fort Sumter, and destroy its defensive powers, thus removing what was considered the most formidable obstacle to the entrance of the Navy; which it was expected would at once enter and occupy the harbor. This hope was never realized, but it is probable that the same boldness and skill, which gave us New Orleans, would have ensured the capture of Charleston.

VI. The Charleston and Savannah railroad was to be cut, to prevent the passage of reinforcements from the latter city northward to Charleston. This movement was undertaken by a detachment weak in numbers, and proved unsuccessful. Its failure did not affect the execution of the general plan. The erection of the batteries on the northern end of Folly Island was prosecuted with secrecy and vigor. Every precaution which prudence could suggest was taken to conceal our movements from the rebels, who were separated from us by an inlet, only four hundred yards in width. In spite of all our precautions, nothing but the carelessness of the enemy kept him in ignorance of our movements, which were, however, in some respects, highly favored by the topographical features of the ground, which consisted of a cluster of high drifting sand hills, in which we excavated the batteries, cutting through the embrasures last of all. The sound of ham-

mers and saws, was deadened and concealed by the roar of the surf, which rolled in at our right hand, and the presence of a background of timber and underbrush, enabled us to conceal some of our work by transporting bushes to the desired localities. Such were the precautions used to avoid unnecessary noise, that upon one occasion, a gun platform which had been improperly laid, was cut in two, for a distance of nearly fifteen feet, by boring auger holes through the planks in a continuous line.

The other details of the general plan were carried out with entire success. The troops were in an excellent state of discipline, and the subordinate commanders seemed to appreciate fully the importance of the duties which were assigned them, and the value of a prompt and implicit obedience of orders. The reinforcements from other parts of the department were disembarked at Folly Island during the night, and the transports which brought them were out of sight before morning, as were the troops; who at once sought the shelter of the woods. All passing to and fro was restricted within limits which at the time seemed absurdly narrow, while the picket line was rigorously kept clear of stragglers, and amateur observers.

Early in the war the rebels had obstructed Lighthouse Inlet, by driving a double row of piles at a point which our assaulting party must pass, and the removal of these piles became necessary. A passage was opened by sawing them off, at a depth of several feet from the surface of the water. This work was begun on the night of the eighth, and was completed the morning of the assault.

At length, at day-break on the morning of July tenth, all was ready and the ball opened. The demonstration on James' Island, under General Terry, was perfectly successful, and the forces confronting him were augmented by a detachment from the garrison of Morris Island, precisely as we wished. The assaulting party, embarked the night before, had reached a position favorable to a rapid advance, and lay concealed by the tall marsh grass. Our guns and mortars, forty-seven in number, ranged for several hundred yards from right to left across the island, and their simultaneous

discharge would have projected nearly a ton of metal toward the rebel works.

Just as the first rays of the rising sun shone forth, the gun on the right fired the opening shot, and the cloud of smoke which marked its discharge was rapidly extended to the left, as gun after gun and mortar after mortar hurled forth their shot and shell, and our gunners addressed themselves to the work which was before them. Four monitors moved up and added the thunders of their fire to the already tremendous uproar. The reply of the rebels was unsteady and inefficient, and but one or two of our men were injured by it. Two of our artillery men were severely wounded by the premature explosion of the gun which they were serving. Our own fire was not very accurate, as it resulted in dismounting only one gun, of all those which were opposed to us. Still forty seven pieces, fired in any direction with rapidity, must prove annoying to uncovered bodies of troops, and it is probable that the reinforcements which were marched down from the upper end of the island during the bombardment must have suffered somewhat from this cause.

While this furious cannonade was in progress, the assaulting party was moving into position, and at length, passing the obstructions which lay in its path, came under the view of the enemy's artillery, which in spite of our own fire, threw several wild shots toward it in the vain hope of staying its progress. As the boats approached and came more nearly between our own batteries and those of the enemy, our fire slackened and finally ceased, and our artillerymen leaped to the parapet, to watch the result of the contest. The scene was one of the wildest excitement; with tremendous cheers our men urged their boats forward, and rapidly forming on the beach, advanced and quickly drove the rebel infantry from its intrenchments, from which it had poured forth a rapid but not very destructive fire. The rebel artillery was badly arranged for a close defence, and was speedily deserted, and in a short time two thirds of the island was in our possession, and scattering parties of prisoners were slowly passing to the rear, evidently in an unenviable frame of mind. The remnant of the rebel

garrison gathered in its stronghold, which was yet to be the price of much blood, and of many valuable lives.

The heat of the sun, and the fatigues of the morning, put an emphatic negative upon all propositions to assault it that day, while the sullen front of Sumter, and the screaming of the great shells which she threw over our heads, at a range of more than three miles, seemed to promise not a little arduous labour, before our task was finished.

At day-break the next morning, Fort Wagner was assaulted without success, and with but small loss compared with that which attended a similar movement a week later. More troops were now brought over from Folly Island, and Gen. Terry's division was recalled from James' Island, where its presence was no longer required. It was decided to place in position against Ft. Wagner every gun which could be moved up, and with the aid of the navy to try the effect of a vigorous bombardment, to be followed by an assault. About a week was devoted to this work, which to the engineer troops was of the most exhausting character, requiring as it did unremitting labor day and night, with insufficient supplies and an annoying fire as attendant evils. At length, on the morning of the eighteenth all was ready and a terrible fire was poured upon the devoted place. The constant fire of the land batteries, and the huge shells of the navy, tore and scattered its massive parapet until it seemed that no living being could exist within its walls. Its replies were infrequent and at length ceased ; its flagstaff was shot away until nothing but a ragged stump remained. Still its garrison was practically unharmed and was soon to display its numbers in a determined defence. At sunset preparations for the assault being completed, the column moved rapidly up the beach, and toward the spot where hundreds of its numbers were to find their graves, and hundreds more were to be maimed for life ; perhaps in no contest of the war was there more bloodshed upon so limited a space ; there certainly was none in which a regiment whose very manhood had been denied, gave better evidence of its devotion to a country not over grateful, than did the 54th Massachusetts. But great as was the loss in that regiment, it was fully shared by others,

and when, after further endurance had become useless, our decimated brigades retired, those who survived had just reason to be proud that they participated in this fearful assault, which most signally failed to accomplish its object.

An assault in broad daylight is frequently successful, because after the enemy's works are once gained even in part, the plan of attack becomes so far developed, that it is comprehended by a considerable number of those who participate in its execution, and although the leading officers may fall at the critical moment, there are usually others who are ready to lead on the men to those points which must be occupied at the proper moment, or not at all. At Wagner there were two or three guns upon which the first rush should have been made, and over which a hand to hand contest should have been maintained, while in the ditch and on the glacis thus rendered tenable, it would have been easy to collect a force whose onset would have carried all before it. In daylight too, the inspiring effect of personal example will often achieve wonders, but the most undaunted heroism cannot affect those from whom it is concealed by the darkness. With these and many other elements of success wanting, it would have been strange had the effort been successful, and perhaps nothing but one of those fortunate accidents, which sometimes turn the tide of a contest, could have rendered it so.

The next day was a gloomy one to all. Many of the officers who had been relied upon to take a leading part in our future operations, were dead or disabled, while a majority of our best regiments had lost some of their bravest officers and men, and that buoyant sanguine spirit which is so essential to the successful prosecution of a great enterprise, was correspondingly lessened in intensity.

The strength of Wagner having been made apparent to all, the more tardy but more certain operations of a siege were entered upon with spirit and diligence, while the varying incidents of its progress, and the prospect that our future operations would be more decisive in their character, soon banished the memory of their recent defeat from the minds of

our men, and nerved them to endure the fatigues of the few weeks which followed, with a patience which was at once commendable and surprising.

On the night of the assault, as soon as its disastrous termination became known, a line of inclined palisading was set up, stretching from right to left across the island, from the beach to the creek which forms its western boundary. This obstacle was intended to check any sortie which the enemy might make, and several days were devoted to strengthening the line thus defined, which was about thirteen hundred yards from Wagner, while at a point about two and a half miles from Sumter, a breaching battery was begun, with the view of testing at that distance the effect of a fire from the heavy rifled guns, which were originally intended to be used at a much shorter range. This battery was located on a spur of the island, which projected several hundred yards into the marsh on our left, and the batteries which were established at this point were designated the Left Batteries, to distinguish them from those which were located on the main body of the island, and in front of Wagner, to whose fire they were exposed.

During the bombardment of the eighteenth, several thirty-pound rifled pieces had been used from the left, and were retained there to prevent the passage of steamers from the city to the north end of the island. One evening just before sunset, one of these guns was turned upon Sumter and two or three shells fired at that fortress, which had the effect of producing as many unmistakable clouds of brick dust, thus showing that they had penetrated the parapet before bursting. It was not intended, however, to employ pieces of this calibre, while guns capable of throwing five times the weight of metal lay idle, and means were taken to bring a portion at least of these guns to bear, at as short a range as could be obtained, and as Wagner lay nearly in a direct line, between our advanced works on the right and Ft. Sumter, it is obvious that an advance toward the former would be an equivalent advance toward the latter. Accordingly after a careful examination of the ground to be occupied, our lines were advanced, on the night of the twenty-third a distance of nearly

five hundred yards, and to a point within a range of two miles from Ft. Sumter. The labors of the troops were this night attended with entire success, and the ground thus occupied formed the second parallel of the siege. Every precaution was taken to preclude the possibility of our being dispossessed of this line, and within a few days it was considered as well fitted to resist an assault, as Ft. Wagner itself. Indeed, this locality soon assumed the appearance of a small fortress. A large central magazine was soon completed, with smaller service magazines, for the use of the breaching and defensive guns. On the left of the parallel, and extending across the creek which limited its extension in that direction, was stretched a boom of heavy timbers, securely fastened together, for the purpose of obstructing the passage of any flanking party in boats, should an attempt of this character be made; but on the right of the parallel stretched a beach, swept by the enemy's fire, and an excellent path for the passage of a sortie. The difficulty of defending this flank, was met by the construction of what was designated the Surf Battery, a structure whose foundation of logs, carefully prepared during the daytime, was laid at night. Upon this was built a parapet entirely composed of well filled sand-bags, with three embrasures, of boiler-plate, for howitzers at its extremity, and with emplacements for two pieces near the shore. The beach was perfectly commanded by this work which would have poured a galling fire into an advancing column.

The construction of breaching batteries at this point, was prosecuted with great energy, and on the first of August platforms had been laid for seven, although the parapets were as yet incomplete, and the guns did not open fire for more than two weeks.

Although the destruction of Fort Sumter was the most prominent feature in our present operations, it was deemed advisable to push our approaches toward Wagner as rapidly as was consistent with a regard for the lines of our sappers, and our pickets forced back those of the enemy, night after night, in order that an advance might not be discovered, until too nearly completed to be arrested, and on the night

of August ninth, the third parallel was established, three hundred and thirty yards in advance of the second, and five hundred from Fort Wagner. The flanks of the ground thus gained were made as secure as possible, by the use of abatis and inclined palisading, so placed as to prevent an enemy from gaining our rear, should he pass either extremity of the parallel. It was considered unwise to risk ordinary field guns so far in advance, and their places were supplied by the use of little affairs, called after their inventor Requa batteries. They consisted of twenty-five rifled barrels, so arranged as to deliver their fire in one flame, but with a lateral divergence which could be varied at will, and although their offensive properties were not severely tested in this siege, a favorable opinion was formed of them, by most of those under whose observation they came.

Hitherto our advance had been almost entirely by the use of the flying sap, which consists simply in the disposition of a sufficient number of men in such a manner that if at a given signal, each begins a trench at his feet, throwing the earth to the front, and unites his own work with that of his comrade on either side, the desired parallel and its approaches will be established, although much additional labour is required to complete the work thus begun. As the assignment of the men to their posts must be made in silence, and during the darkest portion of the night, an engineer officer has good reason to congratulate himself, if he can successfully execute his task. It will be readily understood, that when the men have once begun their labors, they lose no time in interposing between the enemy's guns and themselves as heavy a body of earth as they can throw up, for as a stimulus to active exertion the fear of a lively fire of grape and canister stands unrivalled.

Meanwhile a singular structure was rising from the surface of the adjacent marsh, at a point more than three quarters of a mile from the nearest point of the island, and four miles from Charleston, for whose benefit its armament was especially designed. This work, under the soubriquet of the "Swamp Angel," soon became widely known, and although its fire never proved very destructive, it demonstra-

ted that without any further advance on our part, Charleston might be rendered an undesirable place of residence. Its construction, which was prosecuted almost entirely during the night, was begun by spreading upon the surface of the marsh two thicknesses of heavy tarpaulin.

Upon the surface thus prepared a platform of heavy logs was laid, having in its centre a rectangular opening, slightly larger than the platform of the battery; upon this platform of logs was laid the parapet, constructed entirely of sand bags, which had been filled during the daytime at a point nearly a mile and a half distant, and transported to their destination at night in boats. Around the rectangular opening, a continuous line of planks were thrust down through the soft mud, to the sandy bottom of the marsh, the planks being edge-to-edge, and thus forming a huge chest, nearly filled with the soft soil, upon the top of which a heavy tarpaulin was spread, and over this several inches of sand, and upon this a massive platform of yellow pine, whose weight was partially sustained by the sand and its substratum, and partially by the sheet piling just described. Upon this foundation, which was independent of that which sustained the parapet, was laid the platform proper of the gun, an eight-inch Parrott rifle. The battery was connected with the island by a foot-way, sustained mainly by piles thrust into the marsh, and partially by a bearing surface of light planks.

Thirty-five shots in all were fired from this battery toward Charleston: the Greek fire which attained so great a notoriety at the time, was a worthless composition, inferior in power to many substances which have been in use for years. It failed to inflame a dry pine board which was held in contact with its flame, until it had burned out. Careful parents often entrust their children with fire-works which are far more dangerous in their character.

As soon as the suspicions of the rebels were fully aroused as to our intentions with regard to Fort Sumter, they put forth the most strenuous exertions to protect its exposed portions from our fire, both by piling sand bags against its parapet, and by hanging cotton bales hooped with iron from its coping. The power of cotton to resist the impact of a projectile, has

always been overestimated, and in this case it utterly failed to accomplish its object.

The fire of our breaching batteries was first opened upon Sumter, on the sixteenth of August. Its effect could easily be watched with the naked eye, at a distance of more than two miles. The cloud which followed the explosion of the shells in the parapet was uniformly red, showing that the mass of pulverized brick which was thrown out, must have been very large, to thus mark the usual color of the smoke. At the end of the first day's bombardment the fort presented a ragged appearance, and the efficiency of our fire had surpassed the expectations of the most sanguine. The sight from the rear of our batteries was an impressive one. The huge projectiles flew forward to their destination with a rushing sound, not unlike that of steam escaping from the safety-valve of a locomotive, and their course could easily be traced, from the gun nearly to the fort. Much annoyance, and some loss of life were caused by the premature explosion of many of the shells, those from our right batteries necessarily passing over the troops in the advanced trenches. The cause of these accidents was diligently sought for, and various remedies applied without success. When we consider that within a small fraction of a second, the shell receives a rotaline motion equal to nearly one hundred revolutions per second, the wonder is, not that premature explosions occur at all, but that the friction of the rough iron interior against the powder inside does not cause such an accident at every discharge. It was also supposed that the flame of the gun's discharge penetrated the base of the shell, and ignited its charge. The first difficulty has since been remedied by applying to the interior a smooth adhesive lining of asphaltum. The defects in the base of the shell can be avoided by more careful casting. The bombardment lasted seven days, the last two or three being chiefly devoted to breaking up the larger fragments which had been previously detached.

No sooner had this result been attained, than our energies were addressed to the reduction of Fort Wagner, which still loomed up as defiantly as ever, and barred our farther progress on land. The navy, which it was hoped would enter

the harbor, as soon as its most formidable defensive work had been silenced, remained in a state of comparative inaction, and utterly failed to realize the expectations which had been based upon its supposed efficiency. It became from this moment simply an auxiliary to the land forces, and this not from any lack of personal courage on the part of its officers, but from causes which can be more intelligently investigated, when time has developed some facts which are now hidden, and when those who have fully succeeded elsewhere, under circumstances apparently as adverse, shall have set forth in full their views as to this failure.

The bombardment closed at sunset, on the twenty-third, and the same night a small redan was thrown out from the left of the fourth parallel, which had been opened two nights before by the flying sap. This redan was intended to flank the parallel, and to serve as a basis for future advances. At this point the artillery fire of Wagner became very troublesome, while the rebel riflemen had formed a lodgment in a deep ridge of sand in our immediate front, and with the aid of those in the fort itself, maintained an accurate and fatal fire of musketry. The parapet on the left of the parallel, owing to the scarcity of material, was very slight, and several yards of it were demolished, a section falling before each shell which penetrated it.

Frequent attempts were made, at this and at other times, to employ the full sap in our advance, with varying success. Its distinctive feature consists in the use of the sap-roller, a cylindrical basket stuffed with fagots, which the sappers constantly push before them, securing their flanks by a parapet thrown up as they advance, or by the use of baskets of brushwood, called gabions, resembling barrels in size and shape, which are placed in position and filled, as the sap-roller advances.

Several modifications of this method of sapping are used, when circumstances permit or require them, but as the sap-roller, though impervious to musket-shots, yields at once to an artillery fire, it is an essential element of success, that the enemy's artillery shall be disabled or silenced by an overpowering fire from the aggressor. In our operations the

enemy's guns were frequently turned upon the sap, and its progress during the day time was uncertain and slow, and when vigorously opposed it involved an expenditure of life which circumstances did not warrant. For this reason by far the greater part of our advance was by the flying sap at night.

It now became apparent to all, that no further progress could be made until the enemy's sharpshooters were driven from the ridge in our front. After an unsuccessful attempt by another regiment, the task was well executed by the Twenty-Fourth Massachusetts volunteers on the evening of August 26th. The ground thus gained was speedily converted into the fifth parallel of the siege, and our troops luxuriated in a fair depth of sand in which to execute their works. The fire of the enemy became, if possible, more severe, but the depth of sand was sufficient to afford good cover, and our casualties did not materially increase. At this point we discovered the nature of the obstacles upon which the enemy relied to obstruct our progress: the ground in our front, and a portion of that which we had captured, was thickly planted with torpedoes, most of which were of wood, and so arranged as to explode by the pressure of the foot. A colored corporal was killed by one of them, and his body, denuded of clothing by the explosion, was deposited, face downward, upon another a few yards off, in a position which was exposed to the view of the enemy's sharpshooters, and here it remained two days before it could be removed.

Our troubles did not end here. Many of the men who had fallen on the eighteenth were buried at this point, and our sappers were continually uncovering their remains. It would not add to the interest of this description to enter upon the details of this development, and it will hardly be necessary to state that our men were careful to avoid, as far as possible, a contact so unpleasant.

As our attempts to advance by sapping were met by the enemy with great ferocity, it was at length decided to turn all our heavy guns upon Fort Wagner, and try the effect of a bombardment, to be followed by a vigorous assault. All of our siege mortars, for which good positions could be prepared

in time, were moved up to to the fifth parallel, and a large magazine was constructed in order that their service might be continuous and steady, so far as a supply of ammunition was concerned. The communications from this point to the rear, were strengthened and fitted for the passage and reception of a large body of troops, in order that our assaulting party might be protected until it had reached a point very near the fort. Meanwhile it was discovered that the wooden torpedoes could be handled with safety, if a small auger hole was bored through them, and their bursting charge well moistened with water.

On the morning of September 5th the bombardment began, the land batteries being assisted by the New Ironsides which delivered her fire with an accuracy which left nothing to be desired. Our mortars in the fifth parallel threw every shell where it seemed most needed, and during the night, when their fire was most required, as many as four shells might be seen at once *en route* for the fort. Our fire reached its period of greatest intensity on the morning of the 6th, when, as witnessed from our advanced trenches, no words can do justice to its power; the report of the gun in the rear, the whiz of the projectile close over head, and the sound of its explosion, could sometimes all be heard within a single second; and when several guns were fired simultaneously or nearly so, the uproar was tremendous. The head of our advance was adorned with a flag, which enabled the gunners on the Ironsides to avoid it in this fire, and from this locality the huge round shells could be seen swiftly approaching, until they struck the hard beach and glancing upward, grazed the parapet and bomb-proof, and bursting, scattered their splinters over the interior. From the outset this fire completely subdued that of the place, and our sappers completed their work with entire safety, and on the night of the 6th entered the ditch and removed the obstructions which had been relied upon to check our assault, and made plain the path of the troops who were to storm the work in the morning. Nothing but the evacuation of the place, which was successfully accomplished at midnight, prevented the capture of the entire garrison.

The batteries on the north end of the island at once fell into our hands, and the work of the army was practically complete.

Thus ended a siege, which if it was unfruitful in great results, so far as our occupation of the enemy's territory was concerned, will ever be memorable as an exhibition of the courage, endurance, and skill of the American soldier of every grade, while the feat of destroying a great fortress, in spite of the intervention of two miles of an enemy's territory, challenged the admiration of the civilized world, and gave to it the most convincing proof, that our own resources, if fully drawn upon, were all-sufficient to meet the greatest emergency which might overtake us.

The Parrott gun which stood foremost among the enginery of this siege, has since fallen into disgrace, on account of the fatal results which attended its use at the bombardment of Fort Fisher, but it should be borne in mind that the bursting of a gun must necessarily be attended with disastrous consequences on the crowded deck of a vessel, while in a land battery, fewer men are exposed to its fragments. Twenty-four of these guns burst on Morris Island, but their explosion was attended with fatal results in only one or two cases. Setting aside the danger which attends the bursting of this gun, an important objection still remains, in its liability to fail at a critical moment, and leave an important point unprotected, while to replace a heavy gun which has been disabled at an inaccessible point, involves a large amount of labor, and some risk, for the mounting of a piece is usually regarded with great interest by an enemy, and prompt measures are accordingly taken to oppose such a step. Notwithstanding these defects, in the absence of a better weapon this gun will achieve wonders, wherever it is judiciously used.

No new principles are involved in its construction, and the patent which has hitherto been supposed to protect its manufacture, has lately been declared invalid by the United States Courts. The results which followed its use during our war, were those which usually attend the application of good workmanship and the best of materials to the construction of

a weapon whose fundamental principles have been previously established by experiment.

After the capture of Wagner the efficiency of the blockade was increased materially, although it would have been still more effective had the navy taken possession of the entire harbor.

We found the forts which had been captured well constructed works, and no time was lost in adding to their parapets and obstacles such portions as were required to fit them for a protracted defence, should the enemy attempt to recapture them.

Most of the guns in Wagner were found to be uninjured, and the defensive properties of the work were not impaired to any extent, so far as its artillery fire was concerned. The evacuation was compelled by the character of our siege works, which would have protected an assaulting party until it was able to cope with the garrison on nearly equal terms, when, necessarily, the stronger party must succeed.

Mining was not attempted, because the soil was shallow and subject to overflow. The rebels however feared something of the sort, notwithstanding the existence of these obstacles.

The valuable defensive properties of sand forts were fully demonstrated by this siege, as were the inherent weaknesses of masonry structures, and it is to be hoped that the lesson thus learned will not be lost upon those who are entrusted with the defence of our seaports.

ART. V.—*Catalogues of Colleges, Universities, and Seminaries, Male and Female.* 1867–'68.

WE have now before us one hundred and twenty-seven catalogues, sent us from all parts of the country. These, we believe, represent all religious denominations in the United States, except Mormonism; there is not one of them that has any pretensions to respectability which we have not examined to a greater or less extent, and we are glad to say that, with very few exceptions, all exhibit considerable improvement in literary taste. As we mean to give our im-

pressions of as many as we can, though necessarily in the briefest manner, it is almost superfluous to say that we do not intend our present article as an essay on education; and still less do we intend to advocate the pet system, or peculiar views of any particular denomination.

If, in the course of our remarks, we evince a preference for any college, university, or seminary, it will be on account of its merit, so far as we are capable of judging of it, not on account of the sect which it represents. If we had any bias of this kind, it would naturally be in favor of the Episcopal Protestant church, in which we have been brought up, and from which we have never seceded; but we think it will be seen that while we have every disposition to do justice to the institutions of that church, we are not the less disposed to be just to the institutions of the Catholic church. In proof of this we will give precedence to the Catholic colleges and seminaries, and devote more attention to them than to the institutions of all other denominations. This we do because we prefer to give whatever aid we can to the weak rather than to the strong. We do not mean, indeed, that our Catholic colleges are weak intellectually, for, as we shall show in the course of this paper, none are stronger in that respect. What we do mean is simply that they are weak pecuniarily, the Catholics of America being, in general, too poor to afford them an adequate support.

Did we interfere at all in theological subjects, it would be with the view of reconciling all Christian sects with each other; nor would we exclude the Jews from that union; but regarding this as a hopeless task, we confine ourselves to the cause of education. Not that we would ignore religion; we hold, on the contrary, that there can be no good system of education which is not based upon religion; nay, more, although we cannot pretend to be pious ourselves, we readily admit that the most pious educators are generally the best.

Most of our readers will doubtless deem it needless on our part to make these remarks, yet we are constantly receiving communications informing us that we have written this or that article in favor of this or that sect. Thus, a Protestant doctor writes to inform us that our article on Luther

is "grossly slanderous," and that we must not send our journal to him any more. A Catholic doctor writes from another point of the compass in reference to the same article, denouncing us, though in comparatively mild terms, for our ignorance and bigotry in "dishing up anew those stale slanders about the sale of indulgences"—adding that we evidently did it for the purpose of pandering to the bigotry of ultra-Protestants. A divine from a Pennsylvania village, writes to say that our friendship to popery gives the lie to the motto on our title page, meaning that if we have any pretensions to patriotism, we must at least say nothing good of Catholics as such; and nearly the same mail brings us a letter informing us that an article on Buddhism, which we had recently published, contained "several covert attacks on the Catholic religion," although it so happened that that had not been written by a Protestant at all, but by a zealous Catholic. One accuses us with being "a Jesuit in disguise," another with being "a malignant enemy of the Jesuits," and the twain are equally peremptory and indignant in ordering their names erased forever from our list!

We trust we need hardly assure our readers that we do not permit ourselves to be in the least influenced by communications of this kind; but while they do not at all frighten us, we do not think it irrelevant to allude to them in treating the subject of *education*. What will perhaps be deemed incredible, is, that we have experienced much more bigotry from intelligent Protestants than from intelligent Catholics; at least, we have experienced more enlightened liberality from the latter than from the former. We have been in the habit, from our infancy, of hearing the Catholic clergy spoken of as bigoted and intolerant in contrast with the Protestant clergy. We had always reason to doubt the truth of this; we were persuaded from our own observation that there were at least exceptions to the rule; but our experience in conducting this journal for nine years, during which we have had intercourse more or less extensive with clergymen of all denominations, convinces us that at least in the United States, the Catholic clergy are as liberal and tolerant as the clergy of any other church whatever. In nine

cases out of ten the Catholic bishops and archbishops evince more tolerance, and less bigotry, than the Protestant bishops and archbishops. The latter, though in general very good men, are either altogether indifferent, or they are terribly afraid that popery is preparing some dire calamity for the United States; and as bishops and archbishops are, in these respects, so will the parsons be. We mention these little matters because they have a direct and important bearing on the subject under consideration.

Probably the majority of our readers are not aware that for the last quarter of a century Catholic theological students have paid much more attention to philosophy than Protestant theological students. In the principal Catholic colleges of Europe students intended for the priesthood have to devote several years to the study of Aristotle and Plato; the students of Louvaine and Maynooth devote three times as much attention to the ancient philosophy as those of Oxford and Cambridge; and every enlightened person will admit that no works exercise a more powerful influence in liberalizing the mind, and purifying it from prejudices of all kinds than those of Plato and Aristotle. But they do not merely remove prejudices; their analytical discussions invigorate the intellect: they develop that persuasive power which, from its wonderful effect, may be called the magic of the mind.

This may serve to explain, at least in part, why it is that so many of the most learned and gifted members of the great Protestant universities of England, including ministers possessing benefices in the richest church in the world, have been induced to resign all and join the Catholic church. Those that are married cannot expect to become priests; and those who are in every manner qualified for the priesthood can only expect to address, in England, a congregation very inferior, so far as wealth and influence are concerned, to that which they have been in the habit of addressing as ministers of the Established Church.

It is evident that it is not alone the dogmas of the Catholic church that cause these conversions; for they were the same in Luther's time as they are now—just the same as they were when no Catholic was admissible to any public office

of trust or emolument. But the education of the Catholic clergy was *not* the same; it has been much improved, as we have said, during the last quarter of a century. The priests in England do not make much noise; their names rarely appear in the newspapers. Those who meet them casually would not suppose they knew anything; nor do they care to be regarded in a different light; but in their pulpits, and in their papers and periodicals, they show without any ostentation that they are really philosophers as well as priests.

To the late Cardinal Wiseman, more than perhaps to all others, is this great improvement due. Before his time there were few conversions in England; scarcely any from the learned class. Wiseman had devoted years to the study of philosophy in the land of Cicero and Tacitus. When he came to England, as an humble missionary, he constantly used his pen as well as his tongue; he vindicated his church, but abused no other church. While elevating the standard of Catholic education in every possible manner, he established a quarterly periodical,* which soon took rank with the best in the world. In this journal were commenced those discussions which have so powerfully influenced the greatest minds of two of the most ancient and most celebrated universities of Europe.

This country has not afforded similar opportunities for exhibiting the improvement we speak of; but what intelligent person has failed to observe the rapid progress made by the Catholic church in the United States within the last twenty years? Now, the question is, How has this change been produced? It cannot be said that our people have become ignorant; perhaps no other people in the world have improved more in intelligence during the same twenty years. But although we have had no cardinal in America, we have had two archbishops who have pursued the same course as Cardinal Wiseman. Archbishop Hughes was equally eloquent, bold, and vigorous with pen and tongue. Even those whom he chastised most severely for their attacks on his religion, could not avoid being influenced by his arguments;

* The Dublin Review.

if they were not so influenced, the public at large certainly were; and, accordingly, when the archbishop died, in this city, three or four years ago, no individual of any rank, profession, or creed, was more universally esteemed and respected by Protestants as well as Catholics—especially by the most enlightened class.

Happily for his people, the other archbishop to whom we allude still lives; and we think that no intelligent person who has any knowledge of the Catholic hierarchy in America, and any faith in our judgment, need be informed that we allude to the Archbishop of Baltimore. Still more effectively than even Archbishop Hughes, the Most Rev. Dr. Spalding has pursued in America the course which Cardinal Wiseman has pursued in England. For a quarter of a century, the venerable and learned metropolitan of the United States has been constantly using his pen as well as his tongue; and his tone towards Protestants has never been harsh or intolerant, but always conciliatory and liberal. This is the true Christian spirit which pervades his History of the Protestant Reformation—a work which deserves to be much better known among Protestants than it is.

Although we only mention the two greatest of the American Catholic prelates, we do not mean but that other dignitaries have also contributed to the good work. With not more than one or two exceptions, all have taken a more or less active part in raising the standard of Catholic education, and teaching even the most ignorant to appreciate the value of knowledge.

The various means by which these results have been produced are not apparent to all. Very few of those who are surprised at the wonderful progress made by the Catholic Church in this country have any accurate idea of them; it does not occur to them that there is not a Catholic college or university in Europe which is not represented by some of its most accomplished graduates among the Catholic fraternities in the United States, who devote themselves to education. Thus that denomination of our people possess opportunities of having their sons educated by *alumni* of the celebrated universities of Louvaine, Bruges, Bologna,

Padua, Cordova, Douay, Maynooth, the *Sapienzia* at Rome, etc., etc. Nor is it alone the universities of Catholic countries that are thus represented in the ranks of the various orders now engaged in teaching and establishing colleges in this country; to our own knowledge graduates of Cambridge and Oxford, as well as of Heidelberg, Halle, and Jena, are to be found in the same ranks.

Does not this sufficiently account for that thoroughness of our Catholic colleges, of which we have spoken more than once in these pages, as well as for the growing liberal spirit to which we have alluded above? By this means Catholic students are afforded the advantage not only of having the most accomplished instructors; they are also enabled to profit by the improvements in education made in all the countries of Europe, Protestant and Catholic. Thus, the professors in our Catholic theological seminaries, who have devoted years to the study of philosophy themselves at Louvaine, Bruges, Prague, Padua, or Rome, as the case may be, naturally wish to subject their American students to the same preliminary training. We are reminded of several illustrations of this by the Catholic catalogues before us; but one or two will suffice for our readers. Taking up the catalogue of St. Vincent's Collegiate and Theological Seminary, Westmoreland County, Pennsylvania—an institution conducted by those famed Benedictines who have educated so large a number of the greatest thinkers and most illustrious personages of modern times—we find the following under the head of "Ecclesiastical Course:"

"This course, which embraces the philosophical and theological studies, is completed in three years.

FIRST YEAR.—Logic, metaphysics, ethics, instructions of exegesis, ecclesiastical history, a cursory reading of Cicero's philosophical works, Plato's dialogues, history of philosophy, and philosophy of history."

Now, be it remembered that the student is required to be well acquainted with the classics before he commences his three years' course. The second year Hebrew is included in his studies, etc., so that before he is entitled to ordination he must be pretty well capable of exercising his

reasoning faculties. Glancing over the list of students who have pursued this course during the last term, we find that they have come from New York, Ohio, South Carolina, Illinois, Kentucky, etc.

Turning from Westmoreland County, Pennsylvania, to Niagara County, New York, we find another theological institution, called the Seminary of our Lady of Angels, which, as we learn from its catalogue, had its origin as follows: "Going from one part of the diocese to another, he (Rt. Rev. Dr. Lynch, the present bishop of Toronto) visited the Falls of Niagara. Struck by their grandeur, deeply impressed by the beauty of their romantic scenery, and convinced of the salubrity of the air, he ardently desired to see, located in the vicinity, a seminary in which young candidates for the priesthood might spend *their long years of study* without impairing their health." This seminary is now in a flourishing state, after having encountered obstacles which might have deterred even the most persevering and enthusiastic. What its standard of education is, may be inferred from the following extract from the catalogue:

"Our course of studies embraces all that is required to prepare the youthful candidate for the sacred ministry. Nevertheless, we have (although it be a deviation from the common system) united with our Seminary course the usual collegiate course. This we have done, first, because in the present state of this country, the priest requires a knowledge not only of those things which pertain especially to the sacred ministry, but also of all the branches of education useful to men of secular pursuits; and secondly, because many young men enter a seminary, thinking that they have a vocation to the priesthood, and after due examination find that such is not their calling. In this case, the studies they have pursued in a merely seminary course are inadequate to fit them for the different secular pursuits. These reasons, with others, have induced us to adopt the system of combining the collegiate with the seminary course. Hence, a young man may enter the Seminary and pursue his studies, and if it be the will of God that he become a minister of the altar, he has all the advantages of his two-fold education; but if, on the contrary, he feels that God requires his services in another capacity, he is qualified by the same system, to embrace any social profession. Notwithstanding this, as stated above, the institution is ecclesiastical, and the discipline, strict though mild, is such as is required for training young

candidates for God's holy ministry. We wish that this be well understood by parents and guardians, as well as by the students themselves."

In the Westmoreland institution the majority of the professors represent Catholic Belgium; in the Niagara institution the majority represent Catholic Ireland, the minority in each including Americans and the representatives of different other nationalities. The Catholic church has always acted strictly on the precept of making no difference between Trojan and Tyrian, and nowhere are its benefits more agreeably illustrated than in our Catholic colleges.

Pursuing our course farther to the west, we find the genius, perseverance and piety of France represented at the University of Notre Dame, Indiana. The story of the Very Rev. E. Sorin, the founder of the institution, is like that of many other French missionaries, who have accomplished great results, for we learn from the prospectus before us that "when the Congregation of Holy Cross planted its standard in the St. Joseph's Valley, in 1842, the prospects of success were but moderate; but the founder of the college, poor in purse, yet rich in zeal and energy, strong in his confidence in God, and in his devotion to the Queen of heaven, the help of Christians, to whom he dedicated the great enterprise he was then beginning, has seen the college gradually expand to its present growth, and gain the confidence of all who have patronized it."

The University now ranks among the best educational institutions in the United States. It is by no ordinary efforts this success has been attained. Not content with performing the arduous duties of a professor, the distinguished founder has also established a periodical * which is printed and published in the college, and read by respectable Catholic families in all parts of the United States and British America. In glancing over some recent numbers of the "Ave Maria," we find in that for last week (dated Sept. 5), a letter in the Latin language from Pius IX., to the students of Notre Dame, in which they are addressed, *Dilecti Filii*, (Beloved Sons), in reply to a letter which they had addressed

* The *Ave Maria.*

His Holiness, in the same language, some time previously. This, we need hardly remark, would be considered an honour by the students of the most ancient universities of Europe. We quote one sentence from the Pope's letter, as evincing the spirit in which the students are addressed: "Apply yourselves, therefore, zealously to the study of letters and the sciences, but even more zealously to piety, lest you be puffed up by a vain knowledge, and show yourselves docile to your teachers, who devote themselves entirely to your interests." *

There is another important institution which Dr. Sorin has also been instrumental in establishing; we mean St. Mary's Academy, which is under the direction of the Sisters of the Holy Cross, and delightfully situated within about a mile of the University. Having availed ourselves of the honour of an invitation to visit the Academy, as well as the college, some three years since, while on a western tour, we can assure our readers that the following graphic description, which we extract from the catalogue, is not in the least exaggerated:

"The site of St. Mary's is one to extort the admiration of every beholder. It would appear that nature had anticipated the use to which the grounds were to be applied, and had disposed her advantages to meet the requirements of such an establishment. Magnificent forest trees rising from the banks of one of the most beautiful rivers in the Mississippi Valley still stand in native grandeur; the music of bright waters and healthful breezes inspire activity and energy, while the quiet seclusion invites to reflection and study.

"The landscape is unparalleled in loveliness, diversified by shrub and vine, noble forest trees, bright, deep, green swards, and all that renders rural scenes so charming, united with the embellishments of art which serve to bring out, yet not to mar or supersede, the perfections bestowed by nature. Eighty acres are laid out in fine pleasure grounds, where extensive grape-arbors, numerous rustic oratories, summer-houses, and fountains, are presented to the eye like fair gems in a rich enamel of verdure.

"The building, of brick with stone dressing, spacious and commodious, is one of the best constructed in the country for educational purposes. Every portion of the institution is heated by steam, and hot and cold baths are connected with the sleeping apartments."

* Alacriter itaque incumbite in litterarum ac scientiæ studia; at etiam alacrius in pietatem, ne vana inflemimini scientia, vosque dociles præbete præceptoribus, qui totos se devovent utilitati vestræ.

But what most agreeably surprised us was the excellent system of teaching pursued at the Academy, and the substantial and elegant results of that system. We really indulge in no exaggeration when we say that it seemed to us as if the most accomplished and highly-gifted Sisters in the United States, native and foreign, had been carefully selected for St. Mary's. Surely, thought we, the founder of two such institutions as this and Notre Dame University, may well be regarded as a benefactor, not merely of any particular denomination, but of mankind.

Coming nearer home, we find another institution which may also be regarded as one of the happy results of French genius and piety. In all periods of her history, France has evinced a friendly sympathy for Ireland. The most eloquent of the French historians approvingly recognize this feeling, and generously encourage it. Thus, for example, there is not a nobler, or more poetical passage in Michelet's History than his tribute to Erin and her sons in the fine disquisition on the Celtic race, at the beginning of the work. But nowhere is this feeling more agreeably manifested than in our Catholic colleges and seminaries. Thus, Father Sorin evinces as implicit and affectionate confidence in the learning, fidelity and piety of Irishmen as in those of the most favored of his own countrymen; and he has at least as many of the former as of the latter associated with him in his great enterprise.

The same friendship and good-will find a happy illustration in the other institution to which we allude, namely, Manhattan College, conducted by the Christian Brothers, an Order founded by the good and pious De La Salle, and surpassed by none in its devotion to the great cause of education. As we have given our impressions of this institution more than once, suffice it to say now, that those impressions have undergone no change. We know no institution of any denomination that does its work more conscientiously or more effectually; no educators work harder, earlier, or later, than the Christian Brothers; and of none can it be more truly said that all they do for education is "a labor of love."

We have before us a printed copy of an excellent address

delivered to the graduates of Manhattan College at its last commencement by the Hon. Charles O'Conor, the distinguished advocate. It has seldom been our privilege to hear so appropriate a speech on a similar occasion. The veteran jurist indulged in no ambitious flights, introduced no irrelevant matter, but clothed happy thoughts in language at once forcible, chaste, and effective. Limited as our space necessarily is, in an article in which we have to allude to so many institutions, we cannot forego the pleasure of extracting a passage or two from Mr. O'Conor's address. Referring briefly to the diploma and the duty of the college, the orator continues:

"This morning you were her children; to-morrow you depart from her guardianship and enter a class not under her control, where you and she will be alike on trial. Stern judges, animated by neither favor nor affection, will there pass upon your merits and her capacity to appreciate them. When, solely dependent on your own resources, you shall thus stand beyond these precincts in the midst of rivals, I trust you will exhibit to society the same habits and the same industrious devotion to the duties of life that your preceptors have exacted here. You may thus insure the most beneficial results—profit to yourselves and honor to the teachers by whom you are accredited."

Alluding to the creditable manner in which the students acquitted themselves during the examinations, which continued several days, Mr. O'Conor pays them the following tribute:

"The ancient classics and modern literature, the effect of great historic events, the march of science, the influence of art, the characters and deeds of mighty warriors and illustrious statesmen, as well as the genius and productions of distinguished writers in history and illustrative fiction, have engaged your powers. On these interesting themes you have displayed much earnest, sober, and dispassionate thought."

We can only make room for one extract more. Toward the close of his address, the orator adverts to the contiguity of the institutions of the Sisters of St. Vincent de Paul, the Ladies of the Sacred Heart, the Jesuit Fathers, and the Christian Brothers:

"But in each of these four societies there is a peculiar charm. The members of each renounce the pursuit of wealth or personal distinction.

By vows of perpetual chastity, and obedience to the rules of their order they fasten a curb upon all human desires that might distract attention. Then comes a pledge to the performance of their sacred duties without hire or compensation, during every hour of their lives, with their entire mental capacity, their whole hearts and all their strength. It should excite no surprise that the men and the women sent forth to their allotted stations in the world, after full terms of pupilage under such instructors, are models of propriety. How admirable the system! Two, three, or four years of adolescence, when impressions sink deepest, are employed in the punctual observance of methods the best calculated to promote the physical and mental health, and in habits of the purest morality, with a constant example of earnest piety set before the eye and courting imitation. This formative discipline is accompanied by instruction in useful learning, with as much of elegant accomplishments as individual capacity and condition may justify. Hardly by any instructors less exclusively devoted to the ends in view could such a system be conceived, much less carried into full execution."

The Christian Brothers have two other colleges in this country—one at St. Louis, Missouri, the other at Ellicott's Mills, Maryland. That at St. Louis ranks with the best similar institutions of the South. The most intelligent of the local papers, daily and weekly, devote columns to appreciative reports of its commencement examinations. Much as they praise the college, we are convinced from what we know of the reverend president, and some of his assistants, that they do not exaggerate its worth and efficiency. But we have quite as much confidence in what the Brothers tell us of themselves, as we have in the statements of any others, however impartial or reliable, and accordingly we extract the following paragraph from the catalogue, without having the slightest doubt of its truthfulness:

"The various arts and sciences usually taught in colleges find here an appropriate place in a system of education established by experience, conducted on the most approved plan, and with a devotedness commensurate with the greatness of the work engaged in. By reason of the great number of classes, a thorough gradation for all capacities and requirements has been attained, and the frequent examinations and promotions beget emulation, the soul of advancement, making labor a pleasure and success a certainty."

In short, as long as the Christian Brothers in America have a provincial like the gentleman who occupies that posi-

tion at present, and under whose judicious and enlightened auspices Manhattan College has attained its present confessedly high rank, we have not the least doubt that their educational efforts will continue to reflect more and more honor on themselves, securing them at the same time the gratitude of increasing thousands.

The transition from the Christian Brothers to the Jesuit Fathers is more abrupt than many would suppose. It is a great mistake, however, to think that we have any quarrel with the Jesuits or their colleges. We have merely applied some mild criticisms to two or three individuals of the Society. We did so because we thought it would do them good, and at the same time benefit the cause of education, and we are still of the same opinion. We do not deny for a moment that while disposed to honor those placed in honorable and exalted positions, we would criticise His Holiness the pope himself, if we thought he did wrong; but we have always regarded him as a benevolent, good man—one fully qualified in every respect to occupy the chair of St. Peter—and accordingly we have invariably spoken of him with deference and respect. That we would not shrink from criticising bishop, or archbishop, for the same reason, we believe we need hardly say, though never have we passed the slightest censure, in Europe or America, on more than one dignitary of the church. For this we claim no credit—to the dignitaries themselves be the credit and honor, since they owe their immunity to their virtues, and to the good they have done without ostentation—without being haughty, overbearing, or tyrannical either towards their clergy, or others whom they regarded as subject to their control.

As for the Jesuits, we have merely acted in accordance with their own *Institutes* in the slight chastisement we have inflicted on two or three of their number, since that famous work distinctly says, in good Latin, that when a member of the Society does wrong he should be corrected by a denizen of the outside world.* It has been considered a grievous sin on our part, though not, we trust, like that against the Holy

* Corrector externorum debet aliquis esse. *Constitutiones*, Tom. i. p. 159.

Ghost—to suggest to all whom it might concern that the faculty of a Jesuit college might find some other science more worthy of a public ovation than that of billiard-playing; but we hope the reverend gentlemen have discovered before this, that after all, we were right. We have shown in these pages, that all such practices are strictly prohibited and emphatically condemned by the Institutes.* Nay, we have shown that they are condemned by Pagan writers as vicious and demoralizing. Now we can add that they are condemned in several of the catalogues before us—in those both of Catholic and Protestant institutions. Thus, for example, none will say that the University of the City of New York is needlessly puritanical; no institution is more liberal or more indulgent to its students in anything that is right; yet one of its principal "regulations" is the following:

"Any student who frequents *billiard rooms*, taverns, or *other places of corrupting influence*, will not be allowed to remain a member of the University."—p. 30.

Now, who will say that this is wrong? Will any intelligent father or guardian? Will the Rev. Father Maguire, who once took it upon him to punish us because we ventured to find fault with the billiard affair? This caused us to apprehend that Georgetown College—an institution of which we had always entertained a high opinion—would also betake itself to billiard playing, under its present auspices. Now we are satisfied that there is no danger. Changes have recently been made, which we regard as a guarantee that old Georgetown will continue to maintain that honorable reputation, for which none have been more willing to give it credit than we. We have made our criticisms on the president of Georgetown, and we will make no others until we think they are deserved, for we believe with honest old Horace, that although chastisement is a very good thing in its way, it ought not to be carried beyond certain bounds.†

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* *Vide* Tom. ii. p. 359.; also Tom. i. p. 108.; Tom. vii. 269.

† In this view of the case we are also sustained by the *Instituti Societatis Jesu*, which very properly says that the punishment must not be immoderate; *Ejus castigatio non sit immoderata.* Tom. ii. p. 18. *Reg.* 48. *Sum.* Elsewhere the

Adsit
Regula, peccatis, quæ pœnas irroget æquas:
Nescutica dignum horribili sectere flagello.—Sat. 6. 1. 3.

In making some comments on Georgetown in our last number, we thought the provincial had not lately evinced his usual vigilance; but soon after we learned that he was unwell, and had been so for a considerable time. Although we have never seen the gentleman, or had any communication with him, we sincerely regretted his illness. We knew there must have been something wrong. Now we have a full explanation of "the enlargement of the play grounds and the embellishment of the towers." When the provincial having charge of Georgetown and Holy Cross was able to attend to his duties those institutions were differently managed from what they were lately. But recently he has delegated his authority to another gentleman who has evidently enlightened views; for he has brought back to the College some of those professors who, under wiser and abler auspices had contributed so much to its fame.

We abstained in our criticism from mentioning the names of these gentlemen lest we might be the cause of injuring rather than serving them, while our knowledge of them was limited to what we happened to see them teach in their classes, and to what we knew of the results of that teaching. To all who are acquainted with Georgetown it is sufficient to say now that under the new arrangement Father Kelly occupies the chair of rhetoric and belles lettres. We have not met with a better Grecian in this country than Father Kelly, and suffice it to say of his Latin that we have heard him translate Xenophon into that language to his class with a facility and elegance that reminded us of Cicero in his Tusculan villa discoursing with his friends. Father O'Hagan, another excellent educator and accomplished gentleman, has got charge of the discipline. Father Healy, who is lately from Maynooth, or the *Sapienzia*, we forget which, superintends

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same authority says that some method should be observed in the correction. *Modus in ed servandus. Reg.* 28. *Præp. et Reg.*, 26 *et* 27.

the general studies. Father Clark, a graduate of West Point, under whose presidency the Holy Cross College obtained a charter from the Massachusetts legislature, and took rank among the best similar institutions in the United States, occupies the chair of mathematics, &c.

All this has fully restored our confidence in old Georgetown. We heartily thank the acting provincial in the name of the best friends of education, and we accompany our thanks with the following quotation from Lord Bacon, than whom there was no better judge of education in his time. "For the doctrine of school learning it were the shortest way to refer to the Jesuits." *

To this we can only add in reference to the Jesuits, that we hear a good report from Loyola College at Baltimore under the enlightened auspices of Father Early; and that the catalogues of Fordham and St. Xavier's near home, do not contain half as much defective English as they used some time ago. We wish they would improve equally in other respects. Thus, for example; when they invite persons to attend their commencements, why not provide them with seats? Three times we have presented our tickets at St. Xavier's, in Fifteenth Street, duly signed and countersigned, but the servant-maids and their beaux monopolized all the good seats. We like Biddy and Judy, Pat and Mike, very well in their places; we think none are better. But when we have to struggle with them for a seat and hear their rather emphatic comments at a college commencement, we think there is something wrong, and are very apt to pick up our hat and walk out; especially when we see the faculty mounted in a sort of gallery far above our head, as if they were preparing to take an excursion in a balloon *ad lunam*. At no other college, or seminary, that we have ever attended have we seen such a spectacle as this.

We find we have devoted more space to our Catholic colleges and seminaries than we had intended—so much, indeed, that we have little left for our Protestant colleges. We are not sorry, however; we think we have shown that there is

* Bacon's Works, vol. i., section xix. *Criticism on School Learning.*

good, satisfactory reason for the progress made by the Catholic church in this country. We should remember, at the same time, that it is nothing new for priests and monks to found colleges. It was they who founded the greatest in the world, including those which are now the glory of the most enlightened Protestant countries. Both Oxford and Cambridge were founded by those very monks whom it has been so much the fashion, in modern times, to decry as useless, if not dangerous men. We have a letter now before us, and which we shall be glad to present to our readers, that reminds us of the struggles of those zealous, good men, as shown by various Latin manuscripts which still exist in the archives of those famous seats of learning. Although the communication we allude to is written by the president of one of our Catholic seminaries, most of its suggestions are applicable to all colleges that have to depend on their own efforts for their support; and accordingly, not doubting that it will be read with interest, we subjoin it here:

"EDW. I. SEARS, LL.D.,

"Dear Sir:—You mentioned in your last letter to me, that you intended to write an article on our colleges; I hope that you will not think me presumptuous if I offer some suggestions. First, I think that you could benefit both colleges and patrons of colleges by making your article contain a practical *instruction* on *education* rightly understood. You will benefit our colleges because too many of us forget that education, according to the wants of the country, is *the great object* to be held in view by us. We make the success of our institution our sole object. We forget that the institution is merely the instrument with which we obtain the proposed end, *true education*. This makes us overlook many defects in our courses of studies, in our methods of teaching, in our choice of professors, and, above all, in our government of the youth entrusted to our tuition. I know institutions in which this is the status; attention should be called to this.

"In the second place you will benefit the patrons of colleges. There are many of those who send their sons to college, who never stop to inquire if the college they propose, for the education of their children, be the one in which a true education can be obtained. Frequently a very unimportant circumstance will decide the choice. Frequently the price has much to do with the decision. Some think that because the price is high in one college, therefore, it is the best, and *vice versa*; others think that colleges should not charge such high prices, and, therefore, the cheapest

is the most consistent. You see that this is a serious evil and should be ventilated.

"Another point that needs a particular mention is, the difficulty of conducting our colleges. This arises from many causes. First I may mention, insufficiency of means. Very few indeed of our colleges, especially Catholic, have any endowments. Therefore they are obliged to render themselves self-sustaining by charging a certain sum for tuition, etc. This is the financial part of the institution. It, in our present state, is so *essential* that no institution can advance, unless a good financier be at the head of it. What is, then, the effect of this? The first effect is that those who should be occup'ed in teaching and planning for the literary or scientific advancement of the students are taken up with the perplexing difficulties of getting something to feed them with! Some of the very best men of the institution are thus employed. This should not be the case, and, until our colleges are so endowed that those who conduct them will be freed from the great difficulties of supporting them materially as well as scientifically and literally, much of their efficiency will be cut off, and thus, the people will suffer even more than the institutions.

"A second effect is a very pernicious one. From the very fact or effort of trying to support itself the institution grows into a mere *money-making* concern. This is natural. It is the case with every institution, literary or political, that has to labor for money. The point where money-making should cease is hard to find, and many institutions manage to keep so far from it, that they never find it.

"The people never think of this. Indeed, they do not understand it if they do think of it, and yet nothing should have more influence upon their choice of a college for their sons than this very consideration. It is certain that, if they send their sons to an institution where money-making has become the ruling spirit, their sons will reap but little more benefit from being in such an institution than they would from studying at home.

"Thus all parties suffer from this evil. I have said that the people do not think of this, and yet nothing is more important. They should be made to reflect upon it. I mean not only the *generality* of the people, but even those who, from education and intercourse with our colleges, ought to know this. The remedy for the evil may be far distant; but it must come from the people. They must learn to support the institutions in such a manner that those who sincerely devote themselves to their proper duties will receive their patronage and support.

"I could call your attention to other points, but these seem to me to be more needed just now. I speak of this simply because I wish sincerely the public good. If I were permitted to present the matter to the public, I would endeavor to bring out many of those things which are now not noticed."

Our pages will always be open to any educator who dis-

cusses the subject in so liberal and enlightened a spirit as the author of the above letter.

We are not aware that St. John's college, Annapolis, Maryland, represents any denomination further than that we believe its principal professors, if not its whole faculty, are Episcopalians. At all events, it makes no difference to us what its religious creed may be, as long as we are satisfied that it does good educational work. St John's is one of the oldest institutions in this country, having been founded towards the close of the seventeenth century. Like nearly all Southern colleges, it received but little support during the war. The trustees have adopted a very good means of "building it up," in electing, as its president, James C. Welling, LL. D., of Washington, a gentleman who combines literary talent of a high order with ripe scholarship. Since the election of Dr. Welling, the board has issued "An Appeal to the People of Maryland," a copy of which is now before us, together with the catalogue. Did our space permit us, we would gladly point out some of the inducements offered by the institution; as it is, we must confine ourselves to the following extract from the "Appeal:"

"The Faculty of the College consists at present of seven professors, including the principal, and one tutor. The number of pupils who have matriculated in the institution during the scholastic year that has just closed, is one hundred and fifteen. The success which has already attended their efforts since the reorganization of the College in the year 1866, affords to the Board the augury of a still greater success in the year before them, if the friends of education in Maryland shall lend to the efforts of the Board and of the Faculty that countenance and support which it is believed may now be justly claimed on behalf of the institution committed to their care. With a faculty at once learned and efficient in the discharge of their duties, with ample buildings, representing a money value of $200,000, tasteful in their architecture and fitted for the comfortable reception and entertainment of two hundred pupils; with adjacent grounds whose natural beauty of situation has been heightened by art; with a system of free scholarships not only unsurpassed, but, it is believed, unequalled by that of any American college, the authorities of St. John's confidently commend it to the patronage and support of the friends of education in Maryland, under a profound sense of the necessity which exists for such an institution as they have sought to create, and an equally full assurance that they have done much to meet that necessity.

Limited as have been the resources of the College since the resumption of its duties in 1810, the Board point with undissembled pride to the large proportion of its graduates, who, since that date, as well as in the earlier period of its history, have risen to eminence in every walk of public and private life—adorning the bench, the bar, the pulpit, the halls of legislation, both State and Federal; and within the last few weeks, at the unanimous call of his countrymen, contributing one among the most illustrious of her sons to represent the nation at the proudest court of Europe. The record of the past is an earnest of brighter auguries for the future, and constitutes a cogent plea in favor of conferring upon St. John's College the opportunity of wider power for good."

Returning again to New York, we open the Annual Report of the president of Columbia College, and we are pleased to see, even from a hasty glance, that the institution is improving under the auspices of the Rev. Dr. Barnard. The Report contains several passages which we should like to present to our readers, with such comments as they suggest to us; but we can only make room for two brief extracts, and fortunately these need no comment:

"The total number of students embraced in the roll of the college and its associated schools during the past year has been 767; of whom 319 were members of the school of medicine, 182 were members of the school of law, 126 were members of the school of mines, and 140 belonged to the undergraduate department, or school of the liberal arts. This latter number is stated in the annual catalogue at 144; but of these there were four who failed to matriculate, and who were dropped from the roll. The number for the year ending in June, 1867, was exactly the same. The distribution among the several classes was as follows:—seniors, 27; juniors, 37; sophomores, 32; freshmen, 44."

Further on some remarks are made by Dr. Barnard which are worthy the attention of all who take an interest in education. It will be seen that the president of Columbia frankly admits that the non-resident system is not favorable to the formation of gentlemanly habits:

"The characteristic of the students of this college noticed in the report of the undersigned two years ago, viz., that they apparently bring with them more of the habits of the school, and maintain them longer, here than elsewhere, continues to be true of them still. It is perhaps beyond the reach of college influences effectually to correct this evil. Where a student body is non-resident, there fails to grow up spontane-

ously that tone of superior dignity which marks the bearing of at least the more advanced clases in educational institutions in which the student body constitute a permanent community, and which leads them to look with a kind of mild disdain upon acts of childish and unmeaning disorder. And little can be done by the authorities to promote the growth of this feeling, since, during the few hours of the daily attendance of the students at the college, they are constantly engaged in the exercises of the class-room."

The University of the City of New York is not so wealthy as Columbia. It has, indeed, no wealth except that of intellect and knowledge. When its present venerable and energetic chancellor was elected, some twelve years since, it was deeply in debt, but we are glad to know that there are no longer any claims against it, and that it was never in a more prosperous condition, in all its departments, than it is at the present moment. No institution in America can boast abler professors; no institution anywhere perfoms its duties more faithfully, or in a more cosmopolitan spirit.

Speaking of wealthy colleges reminds us that Yale seems destined to surpass all other literary institutions in this country, not excepting old Columbia, in the extent of its pecuniary resources. The amount of its donations since 1860, is enormous. In a pamphlet now before us, entitled "Yale in 1868," there is a long list of "benefactors," although no one has the honor of appearing in it who has not contributed $5,000, or more. Joseph Battell has contributed $36,000; Wm. A. Buckingham, $25,000; Simeon B. Chittenden, $30,000; Henry Farnham, $36,264 72; George Peabody, $150,000; Joseph E. Sheffield, $161,000, &c.

Yale is undoubtedly a very respectable institution, and we wish it success, but it is certainly nothing better, either in its scholarship, its system of teaching, or its morals, than many other colleges in the United States that have not received as much as one of these donations during the whole period. In our opinion, it may thank its luck much more than its merit. Man is an imitative animal; men who have a superabundance of money are quite as much so as others. One gives a donation to a college, for perhaps no better reason than that his son or grandson once

got into a fight in it, and broke somebody's nose or his head. As a matter of course, he is lauded to the skies as a friend of education, a benefactor of mankind, &c. Others think how pleasant it would be to be talked of in the same way, and accordingly they vie with each other in writing large checks, and long letters to accompany them.

It may be all different in the present case; but, be this as it may, there are several colleges in New England and elsewhere in this country whose diploma we would rather have for our son, or our ward, than that of Yale, although we hold that there is not a State in the Union more enterprising, spirited, and intelligent, in proportion to its extent and population, than that to which the latter institution belongs. Thus, for example, we would certainly have more confidence in the diploma of Harvard, or of the University of New York; we would expect higher culture from it, and much more gentlemanly manners. That money has a tendency to soften, if not refine, the manners, or brighten the intellect, far be it from us to deny; and, if it produce this effect on Yale,—as we hope it may,—none will be more ready than we to congratulate the institution on the plethoric state of its coffers.

We had intended to allude to about a dozen other catalogues; but we find on examination that they contain nothing claiming any particular notice. If we spoke of them at all, such is their character, notwithstanding the very small amount of matter which they contain, that we should criticise them; and were we even in a critical mood, while the mercury is above eighty, Fahrenheit, beside our desk, want of space would preclude us from indulging it.

We must not close, however, without an observation or two on our ladies' seminaries and colleges. We must confine ourselves to two or three, but these are of the representative class. The first female catalogue we happen to open is that of Vassar College. This is a highly respectable institution; certainly its liberal and munificent founder deserves to have his memory honorably preserved. Thus far, however, we cannot say much for the manner in which his very laudable wishes have been carried out. The catalogue be-

fore us is got up in fine style—evidently "regardless of expense." The paper is faultless in its grain, nicely perfumed, yet rather *yellow* in its tinge to be emblematic of the fair maidens whose names adorn it. But we are bound to remember that the illustrations might not have appeared to so much advantage on white paper; besides it is possible that the brochure may have encountered some *smoke* on its way to us, and this would sufficiently account for the yellow hue.

The "pictures," however, are very handsome. That of the "College Edifice," which serves as a frontispiece, is sufficient by itself to induce many a fond mother to send her daughter to Poughkeepsie. But as a map of the world is generally given on the first page of an atlas, the maps of particular countries being given in the following pages, so in the catalogue of Vassar we have separate cuts of the different parts of the college, down even to the gateway and porter's lodge. Thus, under the head of "Extra Collegiate, or Art Studies," printed in capitals, we have a cut which purports to be that of an "Art Gallery"; under the head of "Health and Physical Training" we have a cut of the "Calisthenium," &c. All is described in the letter press in a style at once minute and elevated; in short, of nothing does the whole affair remind us so forcibly as of a certain "Paradise" described by the poet—that,—

> —"happy place
> Where a light of its own gilds every face;
> Or if some wear a shadowy brow,
> 'Tis the *wish* to look wise,—not knowing *how*."

The success of Vassar College would afford us sincere pleasure, but ostentation and pompousness are not the best means of accomplishing success in any enterprise. We had much respect for Dr. John H. Raymond as the head of a boys' school or institute, at Brooklyn. We thought him fully qualified for his position, but we confess we had some misgivings when we learned that he turned his attention from boys to girls. We should not, however, have made the least objection to him as one of the professors in a female school or even college; but it occurred to us that one who had experience in teaching girls or young ladies, would be better

qualified to preside at a female college. Need we say that what would be very passable taste in a boy's school might be execrable in a girl's school? Surely more refinement and delicacy are expected from young ladies than from boys or even young gentlemen; but must not the former as well as the latter take a part, at least, of their tone from the head of the institution in which they are educated.

Far be it from us to insinuate that Dr. Raymond would intentionally teach the young ladies under his charge any bad habits; all we allege is that he is liable, under the circumstances, to commit some awkward blunders while meaning to be very courteous and respectful. He has committed some, even in his catalogue, which are rather amusing. Thus, in the list of "Officers of Government and Instruction," he gives, "Hannah W. Lyman, *Lady* Principal." Now, in the name of common sense, does not any one know that *Hannah* is not the name of a *gentleman?* But assuming it to be necessary and proper to put "Lady" after Hannah, why is it not equally so to put it after *Maria* and *Alida?* Why not say, "Maria Mitchell, *Lady* Professor of Astronomy, and *Lady* Director of the Observatory," and, "Alida C. Avery, M. D., *Lady* Professor of Physiology and Hygiene and *Lady* Resident Physician?" Or why not say, *per contra*, "John H. Raymond, LL. D., *Gentleman* Principal," or Gentleman President?" This would at least be consistent.

With the same regard to propriety and chasteness, every word supposed to mean anything important has its initial letter a capital, such as, "*D*epartment," "*C*ourse," "*R*egular *C*ourse," "*T*heory," "*A*rt, "*M*usical *T*heory," "*C*horal *C*lass," "*M*usic," "*H*istory," "*P*rofessor," "*L*ibrary," etc. All these occur in the text in less than a page and a half (pp. 22, 23), without either beginning a sentence or forming a heading. As for "*L*ady *P*rincipal," "*P*resident," "*D*epartment," "*C*ollege," "*P*rofessor," "*T*eacher," etc., they occur in almost every page, sometimes most of them in every sentence (*Vide* pp. 24, 25).

Some two or three years since we criticised certain of of our male colleges for this sort of vulgarity, but they were sensible enough to take it in good part, admit their error

and avoid it in future; so that now they do not use one capital for every twenty they were wont to use.*

We hope the editor of the Vassar catalogue will become somewhat less inflated also in this respect, if only to suggest to the students that it is not *dress* or loud emphatic *talk* that constitutes a lady, but rather modesty and a somewhat subdued tone.

It is somewhat curious that in the same list of "Officers" Dr. Alida Avery and Maria Mitchell appear as "*P*rofessors," while Elizabeth L. Geigher and Jessie Usher appear as "*T*eachers," one of the Greek language, the other of the Latin language. Another lady appears in the same list as "*I*nstructor;" and, between two "*T*eachers," as if she required to get occasional lessons, appears another who is styled "Assistant to the Lady Principal," whatever that may mean!

As for the curriculum of Vassar, it might satisfy the most learned of the German universities; for our own part we can remember no branch of human knowledge which it does not include. When a young lady of sixteen can translate and write Greek and Latin, speak French, German, and Italian, calculate the orbits of comets and the occultations of Jupiter's satellites, &c., we think she is fairly entitled to a diploma. Yet it would seem that such a phenomenon would not be entirely new. Juvenal speaks of a lady who was so learned that she was able, singly, to relieve the moon when suffering an eclipse!

Una laboranti poterit succurrere lunæ.

As for her logic, he says it was such that the grammarians yielded to her at once; the rhetoricians were confuted, the whole company silenced; neither lawyer nor crier could put in a word, &c.† But as Dr. Raymond is not only president of Vassar College, but also "Professor of Mental and

* Vide Nat. Qr. Rev. Nos. XVIII and XXII; Arts. "Commencements of Colleges," etc.

† Cedunt grammatici, vincuntur rhetores, omnis
Turba tacet; nec causidicus, nec præco loquatur,
Altera nec mulier.—Juv. *Sat.* vi. 438.

Moral Philosophy," we have some confidence that matters will not be allowed to go to extremes. Most readily do we admit that he is a discreet and modest gentleman; and then has he not the "Lady Principal," and the "Assistant to the Lady Principal," nay, the whole "Faculty," to aid him in arriving at a conclusion?

We confess that the transition from Vassar College to Dr. Van Norman's Young Ladies' School, in Thirty-Eighth street, New York, is quite a relief to us. Here there is no ostentation; no attempt to cast the University, or Columbia College into the shade, not to mention Gottingen or the French Academy. Yet, if we wanted a passage from some Latin author well translated, or any other piece of work which an educated, accomplished lady would be expected to perform, we should have much more faith in going to Thirty-Eighth street than to Poughkeepsie. The average number of pupils at the Van Norman school during the past year was 140, and we are glad to learn, that high as its character has been for years, it had never so efficient a corps of teachers, or so encouraging a prospect as it has for the school year just commenced.

It must not be supposed, however, that we would sneer at a good female institution merely because it is called a college; still less would we do so because it is a country college. We once criticised a female university which was situated in the most fashionable part of the Fifth Avenue; but that we did not do so on account of its name, is now sufficiently known.

We do not, for example, criticise Rutgers Female College; on the contrary, we say that it deserves to be supported for the good work it does. We have never been on very intimate terms with Dr. Pierce, its president; there have been years during which we had certainly no reason to abstain from criticising Rutgers under his auspices, had we thought it deserved it; but to this day we never have. We are glad to know that the institution is now in a condition which does much credit to his judgment, energy, and perseverance. We have before us a copy of his Address to the second graduating class of Rutgers Col-

lege, and it affords us pleasure to copy an extract or two from it, by way of contrast with the Vassar style of addressing young ladies. Speaking of the necessity of self-examination in the sense of the divine Plato, as well as of the Christian moralist, Dr. Pierce pertinently remarks:

"Therefore, in the course of a liberal education, the youth should be made to study the soul itself. Of what avail is it that he study the globe, and the adaptation of its continents and isles to the great families of mankind; that with the chemist, he analyze the varied forms of earth and air; that with the naturalist, he study the grasses that clothe the earth, or the animals that feed upon them; that with the geologist, he trace backward to the birth of time the changes of the globe, and read in the rocks and hills the history of the world before man was created; that with the mathematician and geometrician, he investigate the numbers and forms in harmony with which the universe was made; or that with the astronomer, he study the planetary or stellar systems? 'What good to him to have searched the vast aerial domes, and traversed, in his soul, the heaven's infinity,' unless he study the soul itself, by whose powers he is enabled to comprehend these marvellous high works?"

But the president of Rutgers utters still wiser and more useful words. He puts his students on their guard against allowing their education to lead them beyond their sphere, into the domain of the ruder sex—in a word, he warns them against the "Woman's Rights" mania. We are sorry we can only make room for a mere fragment:

"In my Baccalaureate address to the first graduating class of this College, and on other occasions, I trust I have sufficiently shown my sympathy with all judicious efforts to widen the sphere of woman; but I am here constrained, in view of the feverish and disorganizing tendencies of the times, earnestly to impress upon you the great truth that, whether in circumstances of individual concern, or in those affecting the general condition of the sex, it is wisest and best for you to be in sympathy with the customs and laws written on your own souls, and approved by the wisdom of ages, rather than with those women who exhaust all their powers of thought and capacity of feeling, in an *absurd protest against the inexorable fact* that God in His wisdom *hath not made them men!*"

If all who have charge of female institutions would address their students in this spirit, there would be much less indelicacy than there is—much more modesty; and we can

assure our educators that this is the wish of the American people. It is because so much of the "Woman's Rights" doctrine is taught both by precept and example at our female seminaries, that such a large number of the more thoughtful and enlightened class of Protestants, in all parts of the country, send their daughters to the Catholic convents, where they know they will be taught to comport themselves in a *womanly* manner; and it is for the opposite reason that so many of our seminaries fail, or only succeed at best in dragging out a sickly existence. Dr. Raymond would only have to turn his attention to the neighborhood of his late "Polytechnic Institute," to find more than one example of this, from which he may learn a useful lesson. Only a few brief years ago there was a flourishing female seminary on Brooklyn Heights, but if it exists now at all, it is only in a decrepit state. Within the same period the institutions of Drs. Van Norman and Pierce had a pretty hard struggle to sustain themselves, whereas now both flourish in vigorous but friendly rivalry.

ART. VI.—*Reports of Strike-Meetings and other Documents*, 1868.

FROM time to time there appear in our daily papers accounts of associated "strikes" of employed persons for more wages, and less daily work, and lists of corresponding organizations of employers to protect rights which they claim likewise for themselves.

We do not intend to dwell upon these controversies, their spirit or their deeds, but considering the actual state of things bad, we propose to examine where justice and right lie,—what are the true principles which regulate the amount of wages,—and how we can determine it in any case of hiring.

We get no light on this, which one would think the main point, from the proceedings of the opposing associations, as we get no polity or statesmanship from political meetings. Misrepresenting crimination and recrimination, and the individual interest, self-aggrandizement, conceit, or vanity of the

managers, too often take the places of truth, fairness, and justice.

In a practical examination of the question of wages, there are a few underlying principles that must be recognized at the outset. First, The amount of wages depends on the class and kind of employment. Second, It must depend on community and locality, the state of the country, and the times.

The wages of modern times have increased with the wants of civilization—with its enlarged list of necessities—nay, with the changed physical conditions of climate and shelter that accompany its progress. When civilization is being transferred to a new country, and that country is being developed like the United States and Australia, the wages there will differ from those of old and crowded countries. And so it will be found where an activity of civilization is carried from its home into a stagnant though old community. This is the spirit of railroads and telegraphs. It acts when the citizen retires to the village or the farm; it will act when the novel, expanded, and far-reaching activity of Europe and America enter by the avenues now opening into the old kingdoms of Japan and of China.

Third. We must bear in mind that the masses of both the employés and the employers are fair. The workman really does not want to be paid too much, nor does the employer wish to pay too little, as a general thing. The real question between them, and the one we are examining, is, what are just and fair wages. There are incompetent, unreasonable, worthless, lazy and vicious workmen, as well as grasping, cruel, mean, ill-tempered and tyrannical employers, but in all practical social questions, and especially those of political economy, as strictly as in mathematical and philosophical ones, the wonderful doctrine of averages must be used. A lucky or an unlucky speculation, an honest, or alas, a dishonest contract, a war, an undiscovered theft or swindle, a local rise in property, a pandering to extravagance or vice, a price of fancy or necessity, the finding of a diamond or of an oil-well, a rich marriage, and the marvellous results of comprehensive, financial and commercial combination, are occurrences comparatively few in number, and like floods

and earthquakes, Borgias and Catilines, do not affect the general result.

Fourth. This is the great question of value; and all value has relation solely to man individually or socially: What is any thing worth to any man or to men? As all right of property comes to the first possessor by his adding his own labor to it in collecting it or digging it up, or cultivating, or making, or ornamenting it,—and to all successive possessors by their labor in fighting for and taking it by force, or by exchanging their own labor-values for it,—so labor is the source of all value. This last trite principle is practically and directly connected with this question of wages, and "strikes," and "boss-unions."

Fifth. The question and the opposition are really not between labor and something else, but between the rights of labor of different kinds, and in the different shapes, original, bought, or accumulated. The ability to employ others, whether arising from the possession of knowledge and skill, or money, is but one shape of labor: capital is a shape of labor.

Look how the principle of fairness lies at the bottom of the workman's seemingly unreasonable demands. He allows that his employer has a perfect right to an article of his own make, or a gift, or what he has exchanged his property for, or what he has bought with his own property in the shape of representative money, but he complains that the employer receives more than his proportion of the value or price of the goods manufactured; or, as the slang of the demagogue words it, "the capitalist grinds too much enormous profit out of the wages of the poor oppressed laborer." Mere words. We have no doubt he does sometimes; nor have we any doubt that the laborer often charges twice as much as his work is worth, and slights it at that, or twice as much for his time, and idles it away besides.

The employer has rights—but the fatal crime of the times, and it would seem of all modern nations, is, to legislate and to write and to speak, to excite obedience against authority, ignorance against knowledge, what they call lower classes against the higher, inferiors against superiors

in station, subjects against controlling government, the individual against restraining society and authority, the poor against the rich, the criminal against the law. And this crime takes the sacred name of progress, and misleads the cheated people. The true liberty on which only a nation can be happily founded, is an intelligent liberty that sees and guards all classes with an equal eye and arm. Have not false patriotism and legislation for votes gone far enough, and would it not be statesmanship to recognize the fact?

If the principle of acquired property in another's labor, which can be accumulated, or transferred by purchase like other property—and the fact of its always entering into the value of a structure built, or an article manufactured or sold, and of the products or results of labor in general, bodily and mental, both by making a part of the claim for wages by the workman, and also a part of the claim for profit by the employer—if, we say, this principle and these facts could be known and practically felt by the employed and the employer, the hard thoughts, the questions at issue, the quarrels, and the ill-temper and evil of protective unions, and masters' unions, and of strikes and combinations, would be done away with.

The laborer should know and feel that his daily work represents not only the value of what he does that day himself, but it represents also in part the labor or property of his parents and of himself in his childhood and youth; what it cost them or him while he was growing up large enough to work, and also while he was learning how to work, and all that learning cost them or him. Then he can calculate and claim all his rights and the full and proper amount of his wages. And the employer (the laborer probably of the year before), making the same calculations in his case, it will be seen that he has the represented labor, with its claims to be paid, of others, perhaps of many, who lived before him, and which claims have become his property in some way under the name of capital, accumulated and transferred, perhaps through several persons. He can now explain it and make his fair claims. It is only an arithmetical question of divi-

sion, what amount of labor the employer, and what amount the employed is to be paid for, in its different shapes.

With the above principles to guide us, let us now search for a practical answer to the plain question, What is at this time in the United States, a fair day's wages for a fair day's work? We will first take the simplest form, what is called uneducated labor, which does not require special instruction or apprenticeship.

In the United States, the man who has only his labor is born with the claim that his labor shall give him "life," his physical wants, food to keep him in good working condition, sufficient comfortable and decent clothing, and comfortable shelter; liberty, that is, his proportion of taxes for the support of a government—of statesmen but not of politicians—administration of justice at home and foreign protection; and the pursuit of happiness, which also appears in the shape of taxes for all the public expenses of social life and civilization, roads, schools, hospitals, etc. More than that, he is entitled to the interest at current rates, not to the principal, on account of the impossibility in the aggregate, say seven per cent. per annum, upon that sum which it cost his parents as a gift to him, or himself if he had to support himself in his boyhood while he was growing up.

We find all this can be readily calculated upon the single, simple datum of the price of board for the different classes of occupations. This price will upon examination be found to be nicely graduated upon a sliding scale, that takes in the occupation, the times, the locality, the season. We find also that the clothing required by any condition always bears a stated proportion to the board, say one-third. And so does his spending money for his improvement and amusement, the latter as much a necessity as the former, or to express it more broadly and philosophically, for the harmonious action and development of all his faculties. This item is less exact than the others, but it may be put down as equal to that for dress, one-third of the board. So much for his current claims.

From the same data it will be easy to calculate the amount of represented and accumulated expense of child-

hood, 14 years, and youth, 6 years, from birth up to the age of wages, say 20 years: children are boarded at half price till 14, and at full price afterwards. Such are the natural claims which stop with the individual; but the world must be replenished with men and women; half the children die before 5 years of age—two children would keep up the population, but even mothers allow it the chance of increase—so that we may allow the average of four children born to each man and woman, especially as the wife's proportion of such expenses will in like manner be calculated and allowed as her wages, and we must calculate the cost of bringing up the two children that will live, to the age of work. The man's proportion of this item will be four-sevenths, considering the woman's necessary withdrawal from work. And now come in the data of vital statistics, slightly used before; and our inquiries take a more scientific turn. We must now know how long the uneducated laborer will live to want wages, or support; here the Census Tables show us, so as to know how long he will require the above expenses of "life, liberty, and the pursuit of happiness."

We must also know what will be the annual price or premium of what is called an endowment life policy of assurance, or one payable at a certain age selected, (or at death if it happen before that age is reached,) so as to furnish enough money to meet the laborer's above weekly expenses during the rest of his life, between the age at which he can no longer work, which age we must also know from vital statistics, and the age at his death. In the class of labor first to be discussed, the laborer in town or city can work during his whole average life, and will on an average be sick only about 13 weeks of that time.

We must also know how many days in a year on an average he can work. In this class it will be, say three hundred. The difference is in indoor and outdoor work.

At the manufactories of the beautiful painted porcelain wares, the painters are not permitted to work at their trade more than seven years, on account of the deleterious effects of the materials they use for their colors. The poison of the compound used by the friction match factories forbade,

under the penalties of frightful disease, the devotion of more than a few years to the work. Lately, however, the lucky invention of a French chemist suggested, as the two ingredients were harmless by themselves, the putting of one of them on the match and the other on the rough rubber whose attrition supplied the heat, and thus the chemical union which made the poison took place only at the moment of their destruction by ignition: just as the dangerous explosive union of the gases, oxygen and hydrogen, is rendered safe by uniting them only at the point of burning. But these extreme cases of dangerous occupations must remain exceptions and occupy only a small part of the labor time of life, while their operatives turn to other trades. The painter's trade is familiar to every one in its limits, and is more to the point which we are illustrating.

Society has need of a careful list of the average lives, and the number of years of work, and the number of days of work in a year, and the classified prices of board of the respective occupations in the United States. We have statistical societies that can collect and furnish such a list from study, inquiry, and observation.

TABLE I.

Showing the expectancy or average duration of Life of each individual; calculated from the Carlisle Table of Mortality.

Age.	Expec.	Age.	Expec.	Age.	Expec.	Age.	Expec.
Birth.	38½	20	41½	40	27½	60	14½
1	44½	21	40½	41	27	61	14
2	47½	22	40	42	26½	62	13½
3	50	23	39½	43	25½	63	13
4	50½	24	38½	44	25½	64	12½
5	51½	25	38	45	24½	65	11½
6	51½	26	37½	46	24	66	11½
7	51	27	36½	47	23½	67	10½
8	50½	28	35½	48	22½	68	10½
9	49½	29	35	49	22	69	9½
10	49	30	34½	50	21½	70	9½
11	48	31	33½	51	20½	71	8½
12	47½	32	33	52	19½	72	8½
13	46½	33	32½	53	19	73	7½
14	45½	34	31½	54	18½	74	7½
15	45	35	31	55	17½	75	7
16	44½	36	30½	56	17	76	6½
17	43½	37	29½	57	16½	77	6½
18	43	38	29	58	15½	78	6
19	42½	39	28½	59	15	79	5½

TABLE II.

Showing the expectation of life in England in 24 trades and occupations, within decennial periods of ages from 20 to 60; and the average number of days of sickness in the same.

	Will Live at Age of 20.	Sickness from 20 to 30.	Live at 30.	Sickness from 30 to 40.	Live at 40.	Sickness from 40 to 50.	Live at 50.	Sickness from 50 to 60.	Live at 60.
Eng. & Wales, gen. av.	39 yrs.		33 yrs.		26½ yrs.		20 yrs.		13½ yrs.
Manchester Unity, av.	41 "	7 wks.	34 "	9 wks.	26⅔ "	13⅔ wks.	19⅓ "	27 wks.	13 "
Bakers.	42 "	5 "	34 "	7 "	26⅔ "	15 "	20 "	27 "	14 "
Blacksmiths.	38 "	7⅓ "	30 "	8 "	24⅓ "	13 "	18 "	24⅓ "	13 "
Bricklayers.	38 "	6⅔ "	28⅓ "	8⅓ "	22 "	12⅓ "	15 "	29⅓ "	8⅓ "
Butchers.	41⅓ "	4 "	33⅓ "	5 "	26 "	10 "	20 "	17 "	15 "
Carpenters.	45 "		38⅓ "		31⅓ "		25 "		19 "
Clerks & Schoolmastrs.	35 "	4 "	28 "	6 "	20⅓ "	11 "	14 "	13 "	12 "
Coopers.	38⅓ "	6⅓ "	31 "	10 "	24 "	13⅓ "	18 "	34 "	13 "
Dyers.	40 "	5 "	32⅓ "	5⅓ "	25 "	14⅓ "	18 "	31 "	13 "
Hatters.	39 "	5⅓ "	34 "	7⅓ "	28 "	15⅓ "	20 "	32 "	13 "
Laborers, town & city.	41 "	7⅓ "	33⅓ "	10⅓ "	26 "	14⅓ "	19 "	27 "	13 "
" rural.	45 "	7 "	38 "	10 "	30 "	14 "	22 "	23⅓ "	16 "
Millwrights.	40 "	6 "	33 "	8 "	27 "	13 "	19⅓ "	14 "	13⅓ "
Mill operatives.	38 "	5 "	30⅓ "	7 "	22⅓ "	12 "	15⅓ "	28 "	10⅓ "
Miners.	38 "	11 "	31⅓ "	15 "	24 "	25 "	18 "	43 "	12 "
Plumbers.	38 "	7 "	31⅓ "	8 "	24⅓ "	17⅓ "	18 "	33⅓ "	17⅓ "
Potters.	36⅓ "	8 "	30⅓ "	12 "	24 "	24 "	19 "	44 "	14 "
Printers.	37 "	5 "	29 "	7⅓ "	20⅓ "	16 "	14⅓ "	31⅓ "	12 "
Sawyers.	40 "	7 "	33 "	11 "	26 "	14 "	18 "	13 "	13 "
Domestic Servants.	42 "	5 "	34 "	7 "	27 "	10 "	21 "	22 "	15 "
Shoemakers.	41 "	7⅓ "	34 "	8 "	26 "	12 "	19 "	22 "	13 "
Spinners	39 "	6⅓ "	32⅓ "	9⅓ "	25 "	18 "	18 "	35 "	10 "
Stonemasons.	38 "	7 "	30 "	11 "	24 "	16 "	18 "	40 "	15 "
Tailors.	39 "	7 "	32⅓ "	9 "	25 "	12 "	18 "	19⅓ "	10 "
Weavers.	42 "	7 "	35⅓ "	10 "	28⅓ "	13⅓ "	22 "	31 "	15⅓ "
Wheelwrights.	41 "	7⅓ "	34 "	9 "	27⅓ "	8 "	19 "	9 "	14 "
Woodcombers.	38⅓ "	10⅓ "	34 "	9 "	26 "	16⅓ "	17⅓ "	31 "	13 "

We give above a table of the general length of life to be expected at any age from birth to seventy-nine years. Also a table showing the general length of life in England and Wales, the actual length of life among the thousands of members of the Manchester (Eng.) Unity of Odd Fellows, and the different expectations of life between the ages of 20 and 30, 30 and 40, 40 and 50, 50 and 60, as shown in twenty-five different trades and occupations in England. We have also inserted in the last table, as germane to the matter in hand, the different average number of days of sickness in a year in those trades and periods of age. These were published by H. Radcliffe, Secretary of the last named Society. Similar subjects are treated of in Mr. Ansell's "Treatise on Friendly Societies in England," Mr. Nieson's "Vital Statistics," and with more or less extent and particularity in several other publications and articles in Europe and in the United States. A table showing the rate of annual premiums which our life insurance companies charge

on a sum payable at the attainment of any given age, or at death, if it occur before, will be found in the manual of any insurance company whose prospectus appears in this journal. These tables are sufficient for illustration, so far as vital statistics are concerned, of our principles of the measure of wages of labor.

An endowment policy premium adds very little to the amount of wages to be claimed, yet it is an investment, a savings bank, and an insurance. An isolated operative with no heirs to provide for, may pay his little annual part of his wages for a large deferred annuity after he has done the active work of his life.

The use of life insurance and annuities enters in England into the calculations of every family that has forecast enough to make any economical calculations at all; they are getting into use in the United States quite extensively, and should be encouraged in every way.

Another element of the calculation of wages is the tools which the laborer furnishes, if any, their first cost, its interest, and the cost of keeping them supplied and in order.

The above are the just and fair limits of the wages claims of mere labor, that is, all that labor has any right to. An operative gets his day's wages, say $4, for labor on an article for ten days, and receives $40. He sees his employer sell that same article for $100; and he feels that he has been oppressed, ground down by having only 40 per cent. of its great price paid to himself, whose labor, as he says, made it and its value. But his mistake is that his labor did not make all its value, very often not so large a proportion of it as he himself received in wages: the general proof of this is that employers of many operatives often fail in business. Price is a very complicated result of various laborers, that need not be mentioned here, from the time the materials of wood, or minerals, or animals are collected from nature, transported and freighted by individual skill, social insurance, and public protection, and stored and advertised and sold and realized by various distinct investments of other labor, apprenticeship and wages, and capital with its interest and riches and guarantees, every one of

which has its claims for wages out of that price aggregate which the workman sees the consumer pay and his employer receive, and with which he compares his own disproportionate claims only.

He begins at the wrong end; the claims of labor come by themselves and from themselves, without reference to the products of that labor and what is done with them, or the price received for them. When this principle is understood the labor question will be very much simplified and easier of settlement.

Let us now on the above principles cipher out the amount of daily wages that uneducated labor in the United States can claim. The average life of this class is 46½ years; the average number of years of work is 45 years; the average days of work in this climate in a year is 250. The price of *board* in the city of New York is $4.50 a week or $234 a year; *clothes*, ⅓ of that, $78 a year; *money* for improvement and amusement, ⅓ of board, $78 a year; amount of transmitted property from his parents, on investment, that is, the expenses of his childhood for 14 years at half price of board, $16.38, and for six years up to the age of twenty at whole board, $1,404, and his improvement and amusement, $468, making $3,510, or fifteen times the board of an adult of this class, the *interest* on which at 7 per cent. per annum is $245; the annual *premium* by table, at 20 years of age, upon an endowment life policy, payable at 45 years of age when he is unfit for work (or at death if it happen first), say for $1,375, or sufficient for his annual expenses for the 1½ years remaining of his average life after he has ceased work, $50; annual *interest* on the husband's proportion, ⅛ of the expense, $7,000, of rearing two children till 20 years of age as above, $1,000 = $280; State, county and town tax, say $40.

Here we have all the data for the calculation of the claim for wages of an uneducated laborer, which show that the amount is $965 a year, at the present price of living; and that divided by 250, the number of days he can work annually, gives $3.86 a day, and at eight hours a day 48¼ cents an hour.

These details may and will vary with men, for the board and clothes and personal expenses of women of that class are less than those of the men—and with localities—and they may not be considered exactly correct, but let every citizen or philanthropist and employer anxious for truth and justice, take what he may deem the true statistics and apply these principles, and ascertain where they need modifying or correcting—or if right, join us in their use; we speak for justice and not for victory. The importance of the matter demands it, and the verisimilitude of the results is certainly very great.

The confessedly inadequate wages of labor in England, for instance, show plainly that the bare correlation of demand and supply does not prevent misery nor satisfy the claims of humanity to even a mere subsistence. Nor has it in the United States prevented the question of labor and wages from paralyzing enterprise, bringing ruin on employers and misery on the employed, and threatening or exciting deadly civil strife. The constantly appealed to principle of demand and supply fails here also, because of the essentially universal classes of speculators and legalized gamblers in stocks and gold, as well as the regulators and forestallers whose own "bearing and bulling" exertions affect prices abnormally and irregularly, and put the whole community at the mercy of their selfishness and of uncertainty.

We are practically handling a practical subject that comes home to every man and woman, and one of the most important that can come under national review before the American people. We treat the subject in a direct and novel manner—make it a simple arithmetical calculation, and we trust it will elicit discussion and the suggestion of improvements in the data.

It is easily seen how various in actual life will be the results of the same wages among different individuals. We are only ascertaining that inevitable law of social averages which pervades here, as gravity pervades the physical world—you cannot leave it out in any working plans. There may be more days of work, it may be indoor or outdoor—or the ambitious may add the income of extra work—household

purchases may save the profits of board, and thrift and saving may diminish the absolute cost of food and clothes and spending money—accumulation will go on faster. And the wife's wages must be added, and what the children themselves may earn: so on the other hand sickness or curtailed work or bad habits may diminish the income. We do not treat here of the anomalies of wages, the drink money, the doles that make situations of service sometimes the subject of purchase or a bonus, and that, like savage dogs, make a friend's house and hospitality things to be avoided, not for their cost but the annoyance of properly adjusting them —the commissions which servants receive from shopmen for directing their employers' custom, and the calculation of board wages. Nor do we discuss commissions, some of which usage has specifically settled,—1 per cent. on real estate sales, ¼ to ½ per cent. on stock sales, 2½ for selling and collecting, and 5 per cent. for guarantee, etc., etc.; nor the honorarium or fee of due bills, or of custom, or of official organizations—they are personal matters; or local customs, or subjects of special agreement.

The number of different occupations in the United States and in Europe is between thirteen and fourteen hundred, and of these between five and six hundred may be followed by females.

These occupations can be divided into classes according to various principles, such as the materials with which they are occupied, the responsibility attached to them respectively, the amount of preparation and the time and cost necessary to enable a workman to exercise them, which must always form one of the items in the calculation of wages, and the style of living and dressing demanded by society of persons following any particular occupation. The latter, too, and particularly the last, as they affect the cost of living, are particularly fitted to show us how wages should vary with certain elements.

The most hurried observation shows that we have enunciated the true elements of the amount of claims for wages. It may often appear otherwise. There is a difference in the worth of labor depending on the ability or activity or per-

sonal qualities of the employed; the man of acknowledged skill that has cost him years of toil and thousands of dollars to acquire, has been surpassed in his year's income; but these cases are exceptional ones of talent or circumstances, or collateral value, and like diamonds, rarely wanted and bought, though notable when we do see them.

It is to be wished that in the item of statistics the price of board for any class could always be distinctly ascertained in the United States decennial and the States' quinquennial census and returns and tables—and be officially revised and arranged every five years; for by the examination of history we find it decided, constant and regular in the changes it undergoes, unless interrupted by such civil and political revolutions as we have just been in.

The justice and adaptability of the above principles are apparent by observing all around us how flexibly they sway from side to side, and expand or contract so as to include all the phases of actual life. See how they offer opportunity both of poverty and of accumulation. In a wide, new and active country like ours, and in every country in course of development, there is always work enough, but carelessness, laziness, drunkenness, may wilfully curtail the number of hours of employment, and the earnings, or waste the pay that is received, and so may sickness curtail or expend it. Thrift will always live comfortably and make due accumulation under these principles of wages, from working over hours as strength allows, or from eschewing a family, or diminishing individual expenses, for they do not reduce wages to the minimum of a bare bestial subsistence and demand from labor its utmost time, strength and producing power, but only an average.

It is strange that at this day it is necessary to state that the products of labor are distinct from the wages of labor, yet it is the disregard of this plain distinction that arrays the employed against the employer, the workman against the capitalist, the poor against the rich. The accumulation of the products which labor collects or makes from nature is the grand motive power of wealth-getting. There always is a surplus of products of labor be-

yond subsistence, and always plenty of workers who, for one reason or another, have that surplus for sale.

When the laborer has sold his labor, and received his fair price, as we have above set it forth,—that is, got his wages,—he has no room for feeling against or in favor of his employer, any more than a shopkeeper has for or against the man who buys and pays the price for his goods.

The savings of a man's labor which buy the products of another, whether a few dollars worth, or, when aided by accumulation, a hundred thousand dollars worth from a gang of thousands employed, gives the purchaser a property and right in those products, which is not to be challenged. Whether bought with actual barter or cash, or anticipated by credit, they constitute capital; and this accumulation by one, of the purchased surplus labor and wages of others, constitutes riches. Very few could get rich by simply laying aside a part of their own wages.

We broach no new theory or experiments in the labor question; we simply make it plain, and clear it from the ignorance and the prejudices that make it the instrument of envy in cheating and annoying the rich, or those supposed to be so, or of rascality in grinding the poor, or of that fatal curse of republics, the selfish, impudent, deceiving demagogism that for its own ends excites hard thoughts and worse actions between different classes of the citizens of a common society and of a common nationality. The statesman's or socialist's question is not so much upon what the claim of labor for wages is founded, as how to get at the fair amount of those claims in any given case. If this matter were well understood, the "strikes" would look and be avoided as the crimes they are, of the same sort as thieving, as highway robbery, as murder. They destroy and diminish the property of others in both parties, they reduce them to poverty, they take life by taking the means by which they live, as well as by violence. They are to be treated as capital crimes if they cannot be controlled under any other character.

Is it expected that the laborer and workman will take these formulas out of his pocket, with his pencil, to apply

them and calculate whenever a hiring takes place? Hardly that, for he will always have them when once settled like other pervading convictions;—the commonest customs and modes of acting of individual or social economy are the results in practice of rational conviction, sometimes recognized, oftener but a routine.

Employment is the laborer's necessity; with the employer the questions are often various: shall I do it with more or less expense? shall I be satisfied with less profit? shall I do it now or at another time? or shall I do it at all?

Our object is not to ensure wages, nor to find or suggest employment. Through reading and thinking people the truth will sooner or later be transmitted through the whole social mass, and no portions of the people will make it a matter of general or of antagonistic unions and leagues.

We find, in our calculations, that some classes of labor do not receive wages enough. We find that in consequence of this inadequency, poverty, and even crime exist with all their attendant insecurity, wickedness, misery, and other social evils, and all the burdensome private, corporation, and public expenses and taxation, for repressing and meliorating and supporting it. Just and fair wages of labor will not, of course, ward off the helpless non-productive consumption of laziness, nor of congenital or induced imbecility of body or mind, nor accidents, nor sickness, but they will ameliorate, limit, and diminish them; and they will separate unavoidable calamities from the operation of public and private kindness and philanthropy, from the coercive measures and guards of civil government against wrong-doing and crime. For the importance of this, we have discussed the labor question from this point of view. There are 317,000 persons known to be assisted annually in the city of New York —the population itself of a mighty city.

We give briefly two further tests in the formulas of calculation of the proper wages of two other classes of workmen—the clerk and the bricklayer. And first the clerk. His average board in New York city is $8 a week, or $416 a year; his average of sickness is only about 8 weeks in his life; his average of life, from the age of 20, when

he commences work, is about 21¼ years, equal to 41¼ years for the whole life, and 4½ years less than the general average life of all occupations, which by Table is 46⅔ years; and he can work say to the age of 45. He then requires an endowment life policy to the amount of two years' support of his family, say 5¼ times his annual board, or $2,160, payable at his age of 45, or at his death before: the annual premium on that sum, commencing at the age of 20, is $78.71. His clothes a year, ⅓ of his board, $139. His money for amusement and improvement, ⅓ board, $139. The interest, at 7 per cent., on the cost of his childhood, 14 years, and youth, 6 years, up to 20 years of age, or 12⅔ times the board of his class ($3,342), is $234 a year. The husband's proportion (⅔ of support of 2 children to 20 years of age) is ⅔ of double his own bringing up, or 9⅓ times the annual board of an adult of his class ($3,342), and the annual interest on this is $267.33. His State, county, and town taxes are, say $40 a year; making his total annual demands $1,313. As he can work the whole time—300 days, or 2,400 hours in a year—his wages should be $4.37½ a day, 54⅜ cents an hour.

He has no cost for preparation for his business to claim wages for, because the public schools afford that in the United States; nor for tools, or shop, or office, or convenience, as he provides none. This result bears a striking fairness upon its face.

Take still more briefly the bricklayer. Board, $5.50 a week, $286 a year. Life from 20, 22⅔ years, or 42⅔ in the whole, and 4⅓ less than general average. Of this he can work 25 years, but only 200 days in a year. He can work to 45 years of age, and therefore requires an endowment insurance of two years' support of his family; 5¼ his annual board, or $1,544; annual premium, commencing at 20, is $56.33. Clothing, $95; spending money, $95. Interest, at 7 per cent., on his "bringing-up" till 20 ($3,646), is $255. The husband's proportion, ⅔ of support of 2 children to 20 years of age, $2,621. Interest on that is $183 a year. State, county, and town tax, $40. And here begin, in a small way, the claims of educated labor; he brings in a new item of

claim in the annual interest on his investment in preparation, in the shape of a diminution and loss of wages for two years of apprenticeship, say $200 a year, or $400 in all, the interest on which we may call $28 a year—he being rated then as a mere laborer, but supported by his parents, and that support reckoned in casting their wages. The above makes his total annual claim for wages $1,038, which, divided by 200, the only amount of days in a year that a bricklayer can work, gives $5 a day, or 62½ cents an hour.

And now we will close, though we might go on, by taking other occupations, say that of the sewing girls. There we should find that, in the practice of the admirable union houses that are in operation for them in New York, the present actual expense of their board has been from $2.75 to $3.25. This, of course, makes no allowance for the fair wages of private housekeepers who may take them to board. As a general thing, whatever is taken from the usual boarding-house price of board of a class, is subtracted from its sufficiency, wholesomeness, and cleanliness, and therefore cannot determine proper, fair, and just wages.

We might take carpenters, a class which the customs of society require to have more expensive boarding arrangements and larger personal expenses, and who must claim annual interest on their investment of capital in extended and more expensive apprenticeship and more highly-educated labor, and for the additional item of interest on capital invested in tools, and workplaces, and conveniences, and motive power, and the labor of others in transportation, &c., and the longer time he lives, and the fuller number of years, and of days in a year, that he can work.

And finally, we might sketch the wages of a professional man; a lawyer, for instance. The higher board he must pay, the larger social expenses his position imposes upon him, the great investment of capital and time in his academic, collegiate, and professional studies, and their bonus; the expense of his furnished offices and attendance, his costly library, his employment of other labor—clerk, copyist, and junior partner—his stationery and travel, all items of claim for his wages. And further than that, the impossibility of limiting

his thought, study, and toil to the set eight daily hours of labor.

But we trust we have sufficiently and plainly enough set out and provided a practical measure of the claims of wages of labor, in the different classes of human occupation.

ART. VII.—1. *A Popular Treatise on Comets.* By JAMES C. WATSON, A.M. Philadelphia, 1861.

2. *A Treatise on Comets.* By J. R. HIND. London.

3. *Exposition du Système du Monde.* Mécanique céleste. LAPLACE.

4. *Histoire de l'Astronomie au dix-huitième siècle.* MATHIEU.

5. *Histoire de l'Astronomie ancienne et moderne.* BAILLY.

THERE is no science, perhaps, which is at present making more rapid progress than that of astronomy. This advancement is not marked so much by grand and startling discoveries as by the correction and the perfecting of old and established theories. This labor is not to be performed by minds of moderate power, but the master minds of the age devote their time to it. Old theories and calculations are reëxamined with a minuteness which nothing but a deep interest in the subject could inspire. It is not alone in physical astronomy that progress is made; the spectroscope is revolutionizing many of our ideas in relation to the physical constitution of the celestial bodies. Well-equipped astronomical observatories are now to be found in nearly every part of the world where civilization has gained a foothold; not only in Europe and North America, but also in South America, Asia, Africa, and Australia. Many individuals of wealth in this country and in Europe have established private observatories, which are either under the direction of their owners or of persons competent to take charge of them. With this multiplicity of observers scarcely a new celestial phenomenon can pass unnoticed. Formerly the principal authorities in astronomy were the Herschels, but now we have them by the score.

Cometary astronomy receives especial attention. Scarcely

a comet makes its appearance in the heavens without being detected by one or more of the numerous observers, long before it reaches its nearest point to the earth, and when it is visible with the comet-seeker only as a faint nebulous object. The labour expended in discovering a comet in a regular search for one, instituted for the purpose, is really immense. It requires several year's preparation before a person is fitted for such an undertaking. "The astronomer with his telescope, begins at the going down of the sun, and examines in zones, with the utmost care and vigilance, the starry vault, and continues till the 'circling hours' bring the sun to the eastern horizon, when star and comet fade from his view. It requires several nights to complete a thorough survey of the heavens, and often these nights do not follow each other in succession, but are interrupted by the full moon, by clouds, auroras, and by various other meteorological phenomena. He is frequently vexed by passing clouds, fleeting through the midnight sky, and by strong and chilly breezes of the night. His labours are continued throughout the year, and his unwearied exertions do not slacken during the long wintry nights, when the frozen particles of snow and ice, driven before the northern blast, cause the stars to sparkle with unusual lustre, and his breath to congeal on the eye-piece of the telescope. It frequently happens that his labours are not crowned by a discovery, until after several years' search."

Anciently, comets were generally regarded as meteors engendered in our atmosphere. Some supposed them to be prodigies indicating wars, pestilences, famines, inundations, and earthquakes. Others, however, considered them planetary bodies, or wandering stars. According to Aristotle, Anaxagoras and Democritus supposed comets to be produced by the conjunction of many planets or stars. Zeno, the Stoic, entertained a similar view of comets. Being contested in this view by contemporary philosophers, who stated that the number of planets was not sufficiently great to form all the comets which had appeared, it was replied that the number of planets was unknown; that by far the greater number moved in orbits so elongated, that they only return-

ed after intervals of great length; and it was only in that part of their orbits which lies nearest the earth and sun, that they could become visible. The Pythagoreans, who approximated nearest to the true system of the world of any of the ancients, regarded comets as planets, which return only after long intervals, and approach as near the sun as Mercury. The views entertained in that age were much more nearly correct than those held a thousand years later. Olympiodorus, a peripatetic philosopher in the age of Theodosius the younger, maintained that a comet is composed of *dry vapors* in our atmosphere, and set on fire by the heat of the solar rays, and afterwards extinguished by the moist vapors of the earth. Aristotle supposed comets to be enkindled in our atmosphere, to burn for a greater or less period of time depending on the length of their period of visibility, when they became extinguished. No philosopher of antiquity exercised a greater influence on the philosophy of the Middle Ages than Aristotle, and it is to be regretted that the views which he entertained of the nature, magnitude, and structure of the universe, were not of a higher order, and more in accordance with nature herself. He describes the grand views of the Pythagoreans in the same book in which he sets forth his own.

We must not omit to give the views of Seneca on comets. He seemed endowed with an intuition which in very many cases led him to correct conclusions respecting the phenomena of nature; and which made him one of the greatest philosophers and moralists of antiquity. "For I do not think, he says, that comets are a casual outburst of fire, but belong to the eternal works of nature. For why should it surprise us that comets, so rare a phenomenon, should not yet be subject to the regulation of any known laws? and that their origin and ends should be hid from us, who see them only at immense intervals? It is not yet five hundred years since Goerer gave names and number to the stars. And to this day there are many nations who know nothing of the heavenly bodies but as they appear to the eye, who are still ignorant of the causes of the waves and the eclipses of the moon; even we ourselves have only lately attained an ac-

curate knowledge of these phenomena. The time will arrive when the diligence of a remoter age will throw light on subjects which are now involved in obscurity. The time will arrive when our posterity will wonder at our ignorance, of things so plain to them. Eleusis reserves her favors for those who repeat their visits. Nature does not permit us to explore her sanctuary all at once. We believe we are initiated; whereas we halt at the very threshold. Those mysteries are not revealed indiscriminately to all; they are laid up and enshrined within the penetralia. Some are revealed to the men of our age, some to those who shall come after us. Great results proceed slowly." *

It is a thing worthy of note that the superstitious notions of the Middle Ages respecting the influence of comets on the earth, and the danger of the destruction of the human race from these celestial visitors, are not to be traced in the writings of the ancients.

The earliest recorded appearances of comets which seem to be authentic, are to be traced in the Chinese annals, as early as 613, B. C.† The Chinese have professedly recorded the appearance of comets since 2550, B. C.; but the accounts given are quite vague and unsatisfactory. Comets were also observed by the Chaldeans at a very early date, but the record of their observations has not come down to us. The Chaldean astronomers, according to Diodorus, considered the comets as bodies subject to the same dynamic laws as the planets, but receding to a greater distance from the earth; but the Chinese were satisfied with making extended observations on them, without any attempt at an explanation of the laws which regulate their motions or govern their physical phenomena.

It is to Tycho Brahe that we owe the discovery that comets are situated beyond the limits of our atmosphere, and even beyond the orbit of the moon. In the year 1577 a very fine comet made its appearance in the heavens, which was subjected in its motions to the closest scrutiny by Tycho, with his large and accurate instruments, and failing to dis-

* Nat. Quæst. lib. vii. cap. xxii. xxv. & xxxi.

† Cosmos iv., p. 539.

cover any parallax, he concluded that it was situated beyond the orbit of the moon, and in the region of the planetary spaces. Tycho observed it from Uraniburg, and Hagecius from Prague, in Bohemia. These two places differ about six degrees in latitude, but are nearly on the same meridian. Both observers compared the place of the comet with the same star; but notwithstanding these advantages, both observations gave the same result, and it was hence concluded that their instruments could determine no parallax of the comet.

We may see from what has now been stated, that the greatest obstacle to the discovery of truth, is a proper system to regulate our labors. Kepler's result was similar to that of Tycho Brahe. He had an opportunity to observe the return of Halley's comet in 1607, and also the great comet of 1618, and from these observations he concluded that comets move freely through the planetary spaces. Newton, in the third book of the *Principia*, shows that comets are situated beyond the orbit of the moon, but below the sphere of the fixed stars, and consequently in the solar, or planetary region.

Comets were at first supposed to move in straight lines. Kepler endeavored to represent their observed places by supposing them to move in right lines with variable velocities, and several other astronomers subsequently adopted the same hypothesis; and calculations were made in accordance with it respecting the motions of some comets which had previously appeared. This hypothesis, though unfounded in nature, very nearly represents the observed places of many comets, except in those parts of their orbits near the perihelion. M. Cassini was in this way able to predict, for some weeks ahead, the places of a comet with considerable precision. Hevelius, a few years later, seems to have been the first to conclude that comets move in curvilinear orbits, and that the orbit might be a parabola. These conclusions he drew from his observations on the comet of 1665. He did not conjecture, however, what position the sun occupied with respect to the curve. This question was not definitely settled till the appearance of the great

comet of 1680, when Newton and Dörfel proved the orbit to be a parabola and the sun to occupy the focus of the curve.

The observations made by the elder Cassini on a comet which appeared in 1672, and which described a course in the heavens similar to that of the great comet of 1577, observed by Tycho Brahe, first led to the idea that this class of celestial bodies may describe reëntering curves in their motion about the sun, and form a part of the solar system. It was Newton, however, who demonstrated that a comet can move in any one of the conic sections, the curves which it describes depending on its velocity at a given place in its orbit." *

Although angular instruments of some kind were generally used by the better class of astronomers during the Middle Ages, yet observations on comets were sometimes made by estimating their distance from one or more fixed stars by means of the eye alone. When angular instruments were used the observations were frequently very inaccurate, so that it is with considerable difficulty that astronomers of the present day satisfy themselves fully with respect to the identity of recent comets and some that appeared several centuries back.

Upon the revival of scientific studies in Europe towards the close of the fifteenth century, for some time the cultivation of astronomy was almost exclusively confined to Germany. Waltherus, a native of Nuremburg, was the first to introduce the practice of determining the place of a celestial body, by observing its altitude and its distance from two stars whose positions had previously been ascertained. Tycho Brahe, it is well known, had numerous large and accurate instruments with which he made a great many good observations. Hevelius, a wealthy citizen of Dantzic, Prussia, employed instruments similar to Tycho's, but they were more accurately divided. The difficulty of measuring time in those days, induced astronomers, in most cases, to resort to that class of observations which does not employ time as one of the elements. Down to this date (1680) the

* Principia, bk. i., section iii.

best observations reduced the probable error of a position so determined to one minute of arc.

After Newton demonstrated the fact that comets may move in conic sections, and that they actually did move in parabolas or very elongated ellipses, he saw the necessity of having some method by which the elements of the orbits can be determined. In order to effect this, he proposed two methods differing in their fundamental positions.* In the first he supposes that we may regard a small portion of the orbit as a straight line, described with a uniform motion, and that its segments intercepted by right lines drawn from the comet to the earth, at the times of the respective observations, are proportional to the intervals of time between these observations. The objection to this method is, that it gives results which are altogether indefinite. The second method is unobjectionable in theory, but the computations are so very complicated and laborious that the method has not been generally adopted.

No improvement on Newton's method was made for many years, and mathematicians failing in every attempt to discover a method by which an orbit might be accurately calculated without resorting to so extended numerical computations, were obliged to resort to a system of trial and error, and in this way to arrive at the elements of an orbit that satisfied the observations with sufficient accuracy. "Boscovich, however, undertook to solve this difficult problem directly; and the solution which he gave is remarkable as being the first in which the velocity of the comet in its orbit was regarded as one of the essential conditions. His method, as might be expected, is excessively complicated; and from the multiplicity of both algebraical formulæ and graphical operations which it presents, it has never been employed in the actual computation of an orbit."

Lambert next attempted to solve this problem, and among the formulæ which he found pertaining to the motion of a body in a parabola, is one that is very elegant, and which gives the time of describing an arc in

* See *Principia*, bk. iii., prop. xli.

terms of the chord and the extreme radii-vectores.* Astronomers still employ this theorem in every method in use for the solution of this problem, since it affords the means of correcting the hypothetical values which it is necessary to substitute in the equations of the problem. Lambert further showed how to determine at once whether the distance of the comet from the sun was greater or less than that of the earth, which abridges very much the preliminary calculations. Lambert's method was subsequently modified by the researches of Lagrange and Laplace, and the results to which they finally arrived are now in the main adopted as the basis of all analytical solutions. Dr. Olbers proposed another method for finding the elements of a parabolic orbit also (like the above) from three geocentric observations. He supposed the chord joining the comet's position at the extreme observations to be divided into segments by the radius-vector at the second observation, proportional to the intervals of time between the observations. This method, though simple, gives accurate results only when the intervals of time between the dates of the observations are very nearly equal. When the intervals differ considerably from each other, and when the comet is further from the sun than the earth, the results are very unsatisfactory; and for this reason Legendre devised a method suitable to all cases. Instead of assuming what Olbers does, he finds an expression for each segment of the chord in terms of the time. This method can be used when Olbers' fails, but the numerical calculations are far more complicated and tedious.

Having found all the elements of the orbit of a comet, whether they be elliptical, parabolic, or hyperbolic, the position of the comet in its orbit at any time is easily found, which gives its heliocentric place. An easy calculation transforms the position from heliocentric to geocentric longitude and latitude, or to geocentric right ascension and declination. In practice, however, it is found more convenient to investigate the position of the comet with respect to three rectangular coördinate plans, the equator

* See Tait and Steele "On the Dynamics of a Particle," p. 128.

being one, which will give us the rectangular coördinates of the comet referred to the centre of the sun, and subtracting from these the rectangular coördinates of the earth referred to the same point, we have remaining the geocentric rectangular coördinates, which may at once be transformed into polar coördinates giving us the distance of the comet from the earth, and its geocentric right ascension and declination. The several positions thus computed, being arranged in a table, form an ephemeris of the comet.

Having completed an ephemeris of a comet we can compare it with the observed places of it, and if these agree within the probable limits of error, it is concluded at once that the orbit is sufficiently well represented by a parabola. Should the computed and observed places differ considerably, elliptic elements are tried; and when these fail, hyperbolic elements are substituted. The motions of the great mass of comets are sufficiently well represented by a parabolic orbit, but a few have been found to move in ellipses and a still less number in hyperbolas.

The whole number of recorded appearances of comets, amounts to 787. The earliest is one given as 1770 B. C., but there is some doubt about it. The account is as follows: "St. Augustine has preserved the following extract from Varro:—'There was seen a wonderful prodigy in the heavens worthy to be compared with the brilliant star Venus, which Plautus and Homer, each in his own language, call the "Evening Star." Castor avers that this fine star changed color, size, figure, and place; that it was never seen before, and has never been seen since. Adrastus of Cyzicus and Dion the Neapolitan refer the appearance of this great prodigy to the reign of Ogyges.' * This description, such as it is, may be presumed to be that of a comet, but no further particulars have been preserved."†

We must remember that only such comets as were visible to the naked eye, could be seen before the invention of telescopes. Watson ‡ gives the following numbers as a

* De Civitate, XXI. 8.

† Chambers' "Descriptive Astronomy," p. 354. ‡ Comets, p. 147.

record of the comets which have appeared in each successive century of our era: First century, 22; second, 23; third, 44; fourth, 27; fifth, 16; sixth, 25; seventh, 22; eighth, 16; ninth, 42; tenth, 26; eleventh, 36; twelfth, 26; thirteenth, 26; fourteenth, 29; fifteenth, 27; sixteenth, 31; seventeenth, 25; eighteenth, 64; nineteenth (till 1868,) 135. The orbits of about 250 different comets have been calculated and recorded in tables.

The number of comets which have passed the perihelia of their orbits within the last twenty centuries, is vastly greater than the number of recorded appearances which we have set down. By far the greater number of comets which are now discovered, are telescopic. Very many must pass their perihelia in the same region in which the sun is at the time situated, and remain during their whole visit obscured by the solar rays. Arago estimates, from the number of recorded appearances, that seven millions of comets belong to our system. Some recent investigations respecting the origin of comets renders it very doubtful about this large number.

If the comets were subject to no other influence than the attraction of the sun, they would describe accurately one or another of the conic sections; but gravitation is universal, at least so far as we can at present determine, and the attraction of the planets disturbs the motion of the comets, influencing, in some cases to a considerable extent, the time of their perihelion passage. To assign accurately the parabolic elements of a comet, it, therefore, frequently becomes necessary to calculate the disturbing influence of the planets on its motion. But it is in those cases where elliptic elements have been assigned to a comet, whose next return to its perihelion is required to be accurately computed beforehand, that the greatest labor becomes necessary to calculate the whole influence of the planetary attraction.

In the case of planetary perturbations the general theory of disturbed motion can be applied, and the position of a planet can be calculated for any date, either future or past. This is owing to the small eccentricity of the planetary orbits. The disturbance is found in the form of a series, each term

of which is multiplied by some power of the eccentricity and the tangent of the angle of inclination, and so arranged as to have the coefficient of each term less than the preceding. But this cannot be done in the case of the comets, for their orbits are so eccentric, and their inclination frequently so great, that the series would require an unmanageable number of terms to give the disturbance with sufficient accuracy. Some other method, therefore, became necessary in order to compute the disturbance which the planets produce in the motion of a comet.

Newton did little else than indicate what was to be done in the theory of perturbations. Halley foresaw that the larger planets of our system would influence the return of the comet which bears his name, to the perihelion, but analysis had not advanced sufficiently to enable him to enter into the investigation of a question so difficult. He could do no more than estimate the amount of disturbance which Jupiter and Saturn would produce on its return to the vicinity of the earth and sun. He predicted that its next return to its perihelion after 1682, would be near the close of 1758, or the begining of 1759. "It was certainly a bold analogy, in those days," says Professor Watson, "to attribute a difference of more than a year, in the motion of a comet, to the same cause that occasioned a change of only a few days in the motion of the planets; and this confident prediction by Halley may therefore be regarded as one of the most remarkable events in the history of astronomy."

Before the return of the comet in 1759, however, mathematical analysis had advanced to a higher degree of perfection, and "men of sublime genius had arisen, who were able to follow out Newton's theory of gravitation to its legitimate results and consequences. Clairaut, one of the greatest mathematicians at that time in France, undertook to compute the amount of disturbance which the comet would experience in its revolution around the sun. In conversation with Euler and D'Alembert, he had already solved the general problem of perturbations and applied their solution to the moon's motion. Clairaut applied his solution of the problem of three bodies to the case of Halley's Comet, and

computed the derangement caused by Jupiter and Saturn throughout three successive revolutions. In the immense calculations to which these researches gave rise he was assisted by Lalande, who was then entering on his long career, and by Madame Lepante, an accomplished lady of Paris. Clairaut having solved the analytical part of the problem, the numerical computations were undertaken by Lalande. Assisted by Madame Lepante, they worked for six months from morning till late in the evening without intermission. The assistance rendered by the lady computer is thus spoken of by Lalande: "The assistance rendered by Madame Lepante was such, that without her we never could have dared to undertake this enormous labor, in which it was necessary to calculate the distance of each of the two planets, Jupiter and Saturn, from the comet, and their attraction upon that body, separately, for every successive degree, and for 150 years." His final conclusion was that the comet would arrive at its perihelion on the 4th of April, 1759. It actually arrived at that point on the 12th of March of that year.

An amount of labor so enormous as we have seen was required to apply Clairaut's formula to the motion of a comet, deterred mathematicians from undertaking such investigations, and it became necessary to discover some other method more direct and less laborious in its application. But little progress was made, however, in these researches till the year 1778, when the Academy of Sciences of Paris offered a mathematical prize for an essay on this subject. Lagrange composed an admirable memoir on the subject, which formed at once a complete solution of the question and a model for all future investigations. The method which he followed is that of the variation of arbitrary constants. But the usual method of integration is not followed. Having obtained the differential variations of the elements, Lagrange proceeded to integrate them by what has been termed the method of mechanical quadratures.* This consists in dividing the orbit into a number of distinct arcs, and then summing up the effects of perturbation for each arc. The application of this

* See De Morgan's Calculus, p. 313.

process to the whole orbit would demand an enormous amount of calculation, but Lagrange showed that such a course is not necessary. In the case of a comet of long period the method of quadratures would only be necessary in that part of its orbit about the perihelion; but while traversing the superior part of its orbit, on account of its great distance from the sun, compared with that of the disturbing planet (some power of the ratio of these quantities being a factor of each term of the series into which the disturbing function is developed), the usual method of integration can be followed.*

It has been proposed, in the case which we have been considering, to find the motion of the comet in the superior part of its orbit, by supposing it attracted toward the centre of gravity of the solar system, where we might imagine the sun and all the planets concentrated. In Gould's *Astronomical Journal*, Simon Newcomb, in an article entitled "On a Method in Dynamics," has partly developed a method better adapted to the case which we have been considering than the one mentioned above. It consists in finding the position of a centre of attraction equal in its effects to those of all the members of the system. Though worthy of the attention of mathematicians, we presume that it has never been applied to the case of a comet.

Lagrange's memoir being of a general nature, it remained to make an application of it to the perturbations of a comet. In 1812 the Academy of Turin proposed as the subject of a prize, the perturbations of Halley's Comet. The prize was awarded to M. Damoiseau. He determined the value of the major axis at the time of its perihelion passage in 1759, by computing the effects of the planets throughout the preceding revolution. He then set out with the complete elements of 1759 and calculated the disturbing effects of the planets on the elements throughout the whole of its orbit during the next period of revolution. His method of treating the question was the same as that of Lagrange, only he employed the method of quadratures throughout the whole extent of the

* Grant's Hist. Phys. Ast., p. 105.

orbit; a process which he thought more safe than Lagrange's, though more tedious. He finally fixed the time of perihelion passage on the 4th of November, 1835.

In 1826 the Academy of Sciences of Paris proposed the perturbations of Halley's Comet as the subject of a prize. After offering the prize twice without finding any competitors, it was finally awarded to M. Pontécoulant in 1829. His method is the same as that of M. Damoiseau's. His final result gave the 14th of November, 1835, as the time of perihelion passage. The comet passed its perihelion at noon on the 17th of November. Pontécoulant subsequently revised his calculations and employed more correct values of the masses of the disturbing planets, and he found that the perihelion passage would take place at noon on the 16th of November, within twenty-four hours of the observed time.* Sehmann and Rosenberger, two eminent German mathematicians, also investigated the same subject, but their results were less accurate than those of Pontécoulant.

Encke's comet, though telescopic, is one of the most interesting of this class of bodies, from the fact that its period of revolution is continually shortening by about two hours and thirty-eight minutes at each successive revolution. This being the result which would be produced by a resisting medium, the existence of a rare fluid has been assumed by Encke to exist in the planetary spaces, but whose effects are discoverable only within the orbit of Venus. The undulatory theory of light requires the existence of such a fluid throughout all unoccupied space; and the fact that the hypothesis of the existence of an elastic fluid, existing as we have supposed, will explain nearly every observed phenomenon in both cases, seems to render it highly probable that such a fluid exists. The known existence of meteoric rings in the solar system, seems to unsettle the question, and render it possible, to say the least, that their influence may be the cause of the acceleration of the motion of the comet and consequent shortening of its period. This comet completes a

* Grant's Hist. Phys. Ast., p. 138.

revolution in about 1,210 days. Its period is shortened at each revolution by about its eleven-thousandth part, which, if continued at the same rate, will cause it to fall into the sun after about twenty or thirty thousand years.

The mass of Mercury is very difficult to determine. Lagrange determined it by assuming the density of the planets to vary inversely as their mean distances from the sun. Encke's Comet, when near its perihelion, passes at times very near to Mercury, and the disturbance which that planet produces in the motion of the comet enables the astronomer to compute the value of its mass. In 1838 the comet was in the required position, and M. Encke found the mass of the planet considerably less than the value assigned by Lagrange.

The major axis of the orbit of Encke's Comet lies almost exactly in the plane of Jupiter's motion; and since the aphelion of the comet's orbit is near the orbit of Jupiter, it is evident that the planet may sometimes exert a powerful influence on the motion of the comet. This happened at the comet's revolution of 1819–'22. M. Encke computed the perturbations of the comet, allowing for the effects of a resisting medium, and assuming an indeterminate correction to Jupiter's mass. Equating the effects thus produced to the observed errors of the comet's motion, he obtained a number of equations of conditions, the subsequent combination and solution of which gave a value of Jupiter's mass agreeing very closely with that found from the perturbations of the smaller planets.*

One of the most curious and interesting facts recorded in the history of comets, is their occasional separation into two or more distinct bodies. The cause which produces this is at present unknown. Grant refers it to the influence of the sun;† but since our observations can only extend but little beyond the orbit of Mars, it seems pretty difficult to decide whether the breaking-up always takes place in that part of the solar system where the sun's influence is powerful, or in

* Grant's Hist. Phys. Ast., p. 135.

† Ibid., p. 302.

more remote regions of space. It is not impossible that a comet may encounter some of the meteoric rings which seem to exist in the planetary system. Seneca relates that Ephorus, an ancient Greek author, makes mention of a comet which separated into two distinct bodies before it disappeared.* Seneca doubted the fact, but Kepler thought it quite probable;† and he further thought it quite probable that two comets which appeared in the same region of the heavens in the year 1618, were fragments of a separated comet. We are informed by Hevelius‡ that Cysatus perceived in the head of the great comet of 1618 unequivocal symptoms of a breaking-up into two distinct bodies. When the comet first appeared, in the month of November, it resembled a round mass of concentrated light. On the 8th of December it seemed to be divided into several parts. On the 20th of the same month its appearance was that of a multitude of small stars. Hevelius himself informs us that he witnessed a similar appearance in the head of the comet of 1661.§

The most remarkable example, however, which we have of the separation of a comet into two distinct bodies, is that of Biela's Comet in the year 1846, or perhaps the last of 1845. This comet is a faint nebulous object, invisible to the naked eye, with a diameter of about 50,000 miles. At all previous returns to that of 1846 it appeared as a single body; and when first observed in 1845 it presented no unusual appearance. About the middle of December, however, it showed signs of violent disturbance, with indications of a separation. On the 19th it was pear-shaped. On the 29th it was seen attended by a faint nebulous spot. On the 13th of January, 1846, it was observed at the Naval Observatory, Washington, by Lieut. Maury to consist of two distinct bodies, each moving in an independent orbit. On the 15th the division was generally noticed in Europe, and carefully observed. Each body exhibited the usual charac-

* Nat. Quæst., lib. vii. cap. xxi.

† De Cometis, p. 50.

‡ Cometographia, p. 341.

§ Ibid., p. 417.

teristics of a comet, a condensation about the middle parts, and an elongation in a direction opposite the sun. The central condensation of each seems to prove that the comet is of the nature of a fluid, or of fine, disconnected particles, which are drawn together by their mutual gravitation. Professor Hubbard, of the Naval Observatory, Washington, from an elaborate investigation of the motion of the two comets,* found that the maximum distance between them in 1846 was less than the distance of the moon from the earth; and that the observations are satisfied by supposing each part to describe an independent ellipse around the sun.

The next return of the comet to the perihelion would take place in 1852. As the time drew near and the attention of astronomers began to be directed towards the subject, much interest was manifested relative to the phenomena that might be presented. On the 28th of August of that year, Professor Secchi, at Rome, discovered one of the nuclei, but the other was not found till September 15th, when the "new one" was too faint for Secchi to determine its exact position. But what seems curious, it was found on comparison that the new one was really the one that was discovered in August, and the bright one was the *new one*.† On the 16th the southern nucleus (first discovered) was observed, the other not being visible, and on the 17th and 18th only the northern one could be seen; but on the 19th both were observed by Secchi, and the double observation was repeated at Rome and at Pulkowa on the 20th, 23d, and 25th, while on the 21st only the southern and on the 22d only the northern one was visible. "We have thus," says Professor Hubbard, "a most interesting repetition of the alterations exhibited in 1845–46, which now appear more remarkable only in consequence of the extreme faintness of the comets, which was such that the slightest change of light sufficed to carry them either within or beyond the reach of vision." The apparent distance of the two nuclei when discovered was little more than half a degree, but the real distance was about seven times as

* Gould's Ast. Jour., vols. iii., iv., vi.

† Ast. Jour., vol. vi., p. 160.

great as in 1846. It seems to be nearly impossible to tell which of the two nuclei corresponds to the original one of 1846. The hypothesis generally adopted, is that the one discovered in August is the original nucleus.

The return of the comets to the perihelion in 1849 was not observed, owing to the fact that they were in the immediate vicinity of the sun. It was expected that their return in 1866 would be generally observed; but owing to some circumstances, but few observations, of a doubtful character, were made upon one of the nuclei. *

Owing to the small mass of comets, and their occasional near approach to the larger planets, they are sometimes thrown entirely out of their original orbits and caused to describe new ones differing very much from the former ones. Especially is this the case when they pass near to the planet Jupiter, which, as Sir John Herschel says, "seems, by some strange fatality, to be constantly in the way of comets, and to seem as a perpetual stumbling-block to them."

On the 14th of June, 1770, a comet was discovered by Messier, at Paris, and it was observed till the next October the 2d. It passed its perihelion on the 14th of August, and on the 1st of July it was distant from the earth only about six times the distance of the moon, or 1,400,000 miles. It was found that parabolic elements would not represent the motion of the comet. Six years after it had disappeared. Lexell found that it revolved in an elliptical orbit with a period of five and a half years. Its aphelion distance was about 250,000,000 miles, and its perihelion distance 65,000,000 miles. Since the comet was a brilliant object in 1770 it was a curious circumstance that it had not been seen before, and that it was not seen in 1776. Lexell found from the elements of its orbit that in 1776 it was fifty-seven times as near to Jupiter as to the sun, or the fifty-eighth part of Jupiter's mean distance, and at that time the disturbing influence of Jupiter was so great that it threw the comet into an entirely new orbit. It 1776 it could not be seen on account of the relative situations of the comet and the earth at the time,

* Monthly Notices of the Royal Ast. Soc., vol. xxvi. pp. 241 271.

the former being enveloped in the sun's rays. In 1779 it again passed so near Jupiter as to have its orbit entirely changed a second time, so as to render the comet afterwards invisible. Laplace afterwards undertook the analytical investigation of this interesting question, and his results confirm the deductions of Lexell.* He found that the greater axis of the orbit before 1767 was, 2,526,000,000 miles, and its period forty-eight and a half years; and after 1779 the greater axis of the orbit was 1,400,000,000, and its period twenty years. The perihelion distance was double the mean distance of the planet Mars, so that the comet would always remain invisible. The question rested here for nearly half a century, when Leverrier undertook a thorough revision of Laplace's investigations. He found the observations of 1770 not sufficiently accurate to warrant the definite conclusions at which Laplace had arrived. He found that the action of Jupiter might have thrown the comet into a parabolic or hyperbolic orbit, in which it would depart from our system, probably never again to return; or its orbit might have been elliptic with a very long period (Laplace's conclusion); or, finally, its orbit might have been simply modified somewhat without destroying its character of short periodicity — a result which renders it somewhat probable that the comet may yet be recognized.

On the 22d of November, 1843, M. Faye, of the Royal Observatory of Paris, discovered a comet whose period was found to be about seven and a half years. Since its period and path are about the same as those of Lexell's comet, M. Valz advanced the hypothesis that the two are identical. M. Le Verrier undertook a thorough investigation of the subject, and his conclusion was that the two comets cannot possibly be the same body. It is possible that Faye's comet was introduced into, or rather fixed in, our system by the attraction of Jupiter. This is a question that cannot be definitely settled, but Le Verrier has shown that the comet must have been introduced into the system at least as early as 1747, so that it had made not less than thirteen revolutions previous to its discovery.

* Mec. Celeste, liv. ix. chap. ii.

Cometary observations cannot usually be as accurate as those of the planets, because there always is a difficulty in fixing upon the centre, or rather the centre of gravity of the nucleus; and when the comet is faint the difficulty is increased. The errors thus committed render the period of revolution, when calculated directly from the observed places, to some extent uncertain. When there is a long series of observations the probable error of the calculated period is very much diminished.

On the 29th of August, 1844, De Vico, the Director of the Observatory at Rome, discovered a comet whose period was found to be about five and a half years. MM. Laugier and Mauvais thought it identical with a comet observed by Tycho Brahe and Rothman in 1585. Their conclusions were drawn from a resemblance between the elements. Nothing but a thorough investigation of the question, in which the perturbations of the comet's motion were allowed for, could settle the question. Again we find De Verrier to come to the rescue. He traced the motion of De Vico's comet back to the year 1585, and he arrived at the conclusion that the comets are two totally distinct bodies. He also ascertained at the same time that the comet of 1844 is not identical with Lexell's. He thinks, however, that De Vico's comet is the same as the comet of 1678 observed by La Hire We thus see how precarious it is to rely upon any conclusion drawn from appearances that have not been thoroughly investigated.

The periods of revolution of comets are as various as is their physical appearances. Encke's comet has the remarkably short period of three and a third years. Winnecke's, five years; De Vico's, five and a half; Brorsen's, five and two-thirds; D'Arrest's, six and a half; Biela's, six and two-thirds; Faye's, seven and a half; Tuttle's, thirteen and a half; Peter's, sixteen; Halley's seventy-five; great comet of 1848, probably one hundred and seventy-five; great comet of 1858, twenty-four hundred; great comet of 1811, thirty-three hundred; great comet of 1680 (according to Encke), eighty eight hundred years.

As soon as a sufficient number of observations have been made on the apparent place of a comet, parabolic elements

are computed for it, and in order to determine whether it has ever been observed before, a table of the elements of all the computed orbits is examined, and if a set is found to agree with that of the new comet within moderate limits, they are considered as applying to the same body. The comet, however, may have made several revolutions within the period of the two ascertained apparitions. When this is the case an eccentricity, less than the one applying to the whole period, is assumed, and if that does not correctly represent the observations, a new one is assumed, and so on till the correct period is ascertained. Instead of this method, the astronomer can compute the orbit directly from the observations, if he chooses.

The physical constitution of comets is not less extraordinary than their general appearance and motions. A comet may be divided into three parts and each treated separately: the tail, the envelope, and the nucleus. The tail is not an invariable accompaniment of other parts of a comet, since many telescopic comets have no vestige of a tail. A bright comet was seen in 1585 without any sign of a tail. The brightest and largest comets, when first discovered by means of the telescope, are usually without a tail.

Appian was the first European astronomer who discovered that the tails of comets point in a direction opposite to that of the sun. He was led to it by observations upon Halley's Comet in 1731, and upon four other comets which appeared between the years 1531 and 1539. Though Appian was the first *European* astronomer that recognized this phenomenon of comets, yet the fact was known in China at a much earlier date. According to the researches of M. Edward Biot, in the Chinese annals of the Dynasty of Thong, who reigned between the years 618 and 907 of the Christian era, there is an account of a comet which appeared on the 22d of March, 837. The account concludes with this remark: "In general, when a comet (literally a broom) appears in the morning, the tail extends towards the west; when it appears in the evening it extends towards the east. This is a constant rule." *

* Comptes Rendus des Sciences, tom. xvi., p. 751.

Sir William Herschel was led to the conclusion, from observations on the great comet of 1811, that the tail of a comet is a hollow cone. This accounts for the double appearance which the tails of comets present. Near the axis of the tail we see through a less amount of the cometic matter than we do nearer the edges, and this gives rise to the appearance of a darker space along the axis of the tail.

Some comets, however, have been characterized by remarkable peculiarities. We are informed by Chésaux that the comet of 1744 had six tails spread out like a fan. According to Bessel, the comet of 1807 had two tails, one making an angle of 8° with the prolongation of the radius-vector, and the other, which was fainter, making an angle of 29° with it. A comet which appeared towards the close of 1823 had two tails, one opposite to the sun, the other pointing almost directly towards it. The great comet of 1843 was observed in Chili to have a lateral tail issuing from the original one 10° from the head, and extending to a much greater distance than the other.

Comets frequently exhibit a most imposing aspect in consequence of the great length of their tails. The ancients have recorded the appearance of numerous comets whose tails were from 50° to 90° in apparent length. Halley's comet in 1456 had a tail 60° long; the great comet of 1680 had a train 90° in length, as observed at Constantinople; the comet of 1769 had a tail 97° in length; the comet of 1618 exhibited one 104° long; the great comet of 1861 had a tail 106° in length; and the first comet of 1865 (seen in the southern hemisphere) for several days after the perihelion passage, had "a tail almost perfectly straight 150° long." *

The apparent length which the tails of comets present is influenced very much by moonlight and the state of the atmosphere. The same comet not unfrequently exhibits a tail of very different lengths as viewed from different places. Thus, the tail of the great comet of 1769, as seen at London on the 9th of September, was 43° in length; on the same day at Paris it measured 55°; and at the Isle of Bourbon

* R. J. Ellery, Month. Notices, vol. xxv. p. 220.

it was 60°. The tails of comets appear longer in tropical climates than in more temperate latitudes.

The apparent length of the tail of a comet does not usually give us much idea of its real length in miles. This depends upon its apparent length, its distance from us, and its direction with respect to our position in space. The tail of the great comet of 1680 was 96 million miles in length; that of 1769, 38 millions; and the tail of the great comet of 1811 was more than 120 millions of miles in length, and 15 million broad at its extremity.

The tails of comets are developed as they approach the sun, whilst the volume of the head diminishes. This seems to show very clearly that the matter of the envelop is driven off by solar influence, and goes to form the tail. We quote the conclusions at which Sir John Herschel arrived from his observations on Halley's comet at its last appearance in 1835–6. He says: 1st. "That the matter of the nucleus of a comet is powerfully excited and dilated into a vaporous state by the action of the sun's says, escaping in streams and jets at those points of its surface which oppose the least resistance, and in all probability throwing that surface, or the nucleus itself, into irregular motions by its reaction in the act of so escaping and thus altering its direction. 2d. That this process chiefly takes place in that portion of the nucleus which is turned towards the sun — the vapor escaping chiefly in that direction. 3d. That when so emitted, it is prevented from proceeding in the direction originally impressed upon it, by some force directed *from* the sun drifting it back, and carrying it out to vast distances behind the nucleus, forming the tail, or so much of the tail as can be considered as consisting of material substance. 4th. That this force, whatever its nature, acts unequally on the materials of the comet, the greater portion remaining unvaporized, &c. considerable part of the vapor actually produced remaining in its neighborhood, forming the head and coma. 5th. That the force thus acting on the materials of the tail cannot possibly be identical with the ordinary gravitation of matter, being centrifugal or repulsive as respects the sun, and of an energy very far exceeding the gravitating force towards that

luminary. This will be evident if we consider the enormous velocity with which the matter of the tail is carried backward, in opposition both to the motion which it had as part of the nucleus, and to that which it acquired in the act of its emission, both which motions have to be destroyed in the first instance, before any movement in the contrary direction can be impulsed." It would seem to be impossible for matter driven to such enormous distances from the nucleus ever to be recalled by the attractive force of the comet. It is thus quite probable that some portion of the tails of comets is left behind at every return to the perihelion. This cometic matter thus left may be attracted to the earth and the planets, and be one source whence sporadic meteors are derived.

The tails of comets do not usually attain their greatest length till a short time after their perihelion passage. This is what we should expect if the sun is the principal producing cause. The tail usually inclines a little towards the region last quitted. The tails of some comets are considerably curved, others are nearly straight. The convex side, or that which is in the direction of the comet's motion, is much brighter than the other. Any theory of comets' tails must, it is evident, explain all these observed facts.

Various theories of comets' tails have been proposed to account for the phenomena which they present. Some have maintained that the conditions of equilibrium of a comet when acted on by its own feeble internal attraction and the powerful influence of the sun, are sufficient to account for all the phenomena presented by their tails. Kepler and others have attributed to the light of the sun a repulsive action sufficient to drive off the lighter portions of the comet in the form of the tail.

Others proposed a theory which, as subsequently modified by Bessel, is as follows: They suppose a repulsive force to reside in the sun, of a polar nature like magnetism and electricity. Olbers supposed the force to be electrical producing the repulsive force in the sun and a similar one in the comet, and a specific action in the sun which we may suppose exhibited in the case of many tails. Bessel subjected Olbers' hypothesis to a rigorous mathematical cal-

culation, introducing such modifications as were found necessary. He supposed the action of the sun on the comet to be exercised in two different ways, namely, by a general action equal for every part, and by a differential action, strongest at those parts nearest to the sun, and most feeble at those parts farthest from him. At first, he supposes that the comet experiences the general action of the sun, and under this action the comet emits from every part of its nucleus particles of matter whose polarity is negative with respect to the sun. As the comet approaches the perihelion it will experience the second mode of action, giving it the positive pole which he supposes will be on the side next to the sun. At this point an emission of nebulous matter will commence; and since the polarity is positive, this emission will be directed towards the sun. In passing through the nebulous atmosphere, which is filled with negative particles, the nebulous matter emitted will gradually lose its primitive polarity and finally assume the opposite one before it reaches the limits of this atmosphere. This emission from the nucleus will now be driven back by the action of the sun, to form the tail.

After the appearance of the great comet of 1843, Professor Norton, without knowing what Olbers and Bessel had done, proposed a similar theory. The appearance of the great comet of 1858 afforded an excellent opportunity to test this theory. Norton modified his slightly and was thus enabled to account completely for the phenomena which the tail of the comet of Donati presented. It yet remained to subject the theory to a rigorous mathematical investigation. This was done by Professor Peirce. He supposes the tail to have the form of a hyperbola, and the repulsive force exercised by the sun to emanate from the focus of the opposite branch of the curve. In this way he was able to account completely for the appearance which the tail of Donati's comet presented.*

Hevelius was the first to ascertain that the volumes of comets diminish as they approach the sun, and increase as they recede from him. For many years these observations

* Astron. Jour., Vols. v.-vi., p. 186, 50.

were neglected. In 1828, however, Struve measured the diameter of Encke's comet, and he found that on the 24th of December, when the comet was distant from the sun 0.5419, its diameter was 3.1 terrestrial radii; and on the 28th of the preceding October, when its distance was 1.4617, its diameter was 79.4 of the same linear units. The volume in the one case was sixteen thousand times as great as in the other.*

The great comet of 1858 afforded more information respecting the physical constitution of that class of bodies than all its predecessors. Particular attention was given to all the phenomena which the comet presented, by Professor Bond at Cambridge, with one of the finest telescopes in existence. He subsequently prepared a complete treatise on the comet, in which he has treated in detail all the observed phenomena.† The repulsive force which Sir John Herschel assumed to exist in the case of Halley's Comet (referred to on a preceding page) was manifested in a most palpable manner in the case of the great comet of 1858. The solar influence caused one envelope after another to ascend from the nucleus until some time after the perihelion passage. During this time the nucleus was found to diminish quite rapidly. Professor Bond watched carefully for a phase similar to that which the moon and inferior planets present, but none could be seen.

The head of this comet was so bright that it could be seen with the telescope for some time after sunrise. A few other comets have been much brighter. The comet of 43 B. C. could be seen two or three hours before sunset. The comet of the year 1402 could be seen at mid-day. The great comet of 1843 was visible when only a short distance from the sun. A comet of 1847 was seen at Dondas at mid-day. The third comet of 1853 was seen in the daytime when only 12° from the sun.

In general those comets which have been seen in the daytime, passed, at the time, very near the sun. The great

* Annuaire for 1832.

† Annals of the Astron. Observ. of Harvard Coll., Vol. iii.; Math. Monthly, Vol. i.

comet of 1680, when nearest the sun, was within 590,000, miles of its centre; and that of 1843 was within 510,000 miles. The comet of 1847, referred to above, was within four million miles.

It has long been a question whether comets shine wholly by reflected light, or partly by light emitted directly from the nucleus. It was thought that reflected light could not explain all the phenomena presented by the great comet of 1811. Some observations af Arago on the comet 1819, and on Halley's comet in 1835, by means of the polariscope, seemed to show that at least a part of their light was reflected. Since the invention of the spectroscope, however, this question has been more definitely settled. In 1864 Donati found that the spectrum of a comet visible in that year consisted of bright lines; in other words, its material was in the condition of a luminous gas. The spectrum of a comet seen in January, 1866, with a faint nucleus, was found by Mr. Huggins to to consist of two parts, a continuous spectrum and a bright point, showing that the coma shines by reflected light, but the nucleus is self-luminous, and similar in constitution to the nebular. Another observed by him in May, 1867, had a similar constitution.*

Astronomers were scarcely prepared for this result of observation. Their deductions in relation to the constitution of comets were, that the nucleus partakes of the nature of a fluid or solid, and the envelope and tail, if any part, of the nature of a nebula. The spectrescope, however, has taught us that the reverse is the truth, at least in the case of those comets which have been examined. No bright comet has recently appeared so that its light might be examined, and we must patiently wait till some such comet makes its appearance.

M. Hock, of Utrecht, has instituted a comparison of the orbits of comets in such a way as to determine whether we should not consider some of those bodies as forming families, rather than being isolated bodies. "I admit," he says, "that the orbits of comets are by nature parabolas or hyperbolas,

* Month. Notices, Vol. xxvii. p. 288.

and that in the cases when elliptical orbits are met with, these are occasioned by planetary attractions, or derive their character from the uncertainty of our observations. To allow the contrary would be to admit some comets as permanent members of our planetary system, to which they ought to have belonged since its origin, and so to assert the simultaneous birth of that system and of these comets. As for me I attribute to these a primitive wandering character. Travelling through space they move from one star to another in order to leave it again provided they do not meet with any obstacle that may force them to remain in its vicinity. Such an obstacle was *Jupiter*, in the neighborhood of our sun, for the comets of Lxell and Brorsen, and probably for the greater part of periodical comets; the other part of which may be indebted for their elliptical orbits to the attractions of *Saturn* and the remaining planets. "Generally, then, comets come to us from some star or other. The attraction of our sun modifies their orbits, as had been done already by each star through whose sphere of attraction they have passed. We can put the question whether they come as single bodies or united in systems. This is the point I have undertaken to investigate. Since some time already I had felt the truth of the following thesis:—*There are systems of comets in space that are broken up by the attraction of our sun, and whose members attain, as isolated bodies, the vicinity of the earth during a course of several years.*" *

To prove this thesis Hock thought it sufficient to show that some comets have once been near one another at a great distance from the sun; and also that they composed a system and had not been brought together by chance.

By comparing together the orbits of various comets he finds the comets 1860 III., 1863 I., and 1863 VI. to fulfil the conditions required. He also finds the comets of 1689 and 1698 to answer the conditions; also comets 1846 VII. and 1847 II.; 1857 III. and 1857 V.; 1862 II. and 1864 II.

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* Monthly Notices, Vol. xxv., pp. 243–4. See also Vols. xxvi. & xxvii.

These systems which we have here enumerated, are composed of members whose motion is in the same direction. He finds several other systems some of whose members have direct, and others retrograde motion.

He calls the point where they came under the immediate control of the attraction of the sun, the aphelion point. We give his results for one system. For the aphelion positions he finds for the comets—

	Longitude.	Latitude.
1860 III.	303.1°	73.2°
1863 I.	313.2°	73.9°
1863 VI.	313.9°	76.4°

For the distance from the sun he finds, taking the comets in the above order, the following numbers for the date A.D. 756.97, 600.00, 600.42, 600.25; and for the date A.D. 1020-.87, 500.00, 500.56, 500.36. He concludes that these three comets form a system *not* brought together by chance. He adds another proof. Since these comets were once together and formed one, they were all at the same point on the celestial sphere when broken up, and their orbits must now all intersect in that point. He finds that they do, and its position is in Long. 316° 35′ 55″; and Lat.—76° 56′ 42″. He further thinks that the star from which they came may be found, or its place within certain limits.

These researches of the Dutch astronomer and mathematician are very interesting. They have, it will be seen, a bearing on the *origin of comets*, a subject that is now attracting considerable attention. Some recent speculations of Sig. G. V. Schiaparelli, seem to show that there is a connection between comets and meteors, and that both were derived from regions of the universe beyond the solar system. He finds that the August ring of meteors and the second comet of 1862, have the same orbit, or at least within moderate limits.* According to this, then, we are to regard the comet as a large meteor, or the meteors as small comets. He also finds that the orbit of the November meteors and the orbit of the first comet of 1866, correspond, and have the same relations as in the above case. Each has

* Monthly Notices. Vol. xxvii. p. 133. Ibid. p. 247.

a period of about thirty-three and a quarter years. At present there seems to be a strong probability that all comets now attached to our system, have been derived ab extra.

Since Newton's discovery of the law of universal gravitation, and the possibility of comets moving in any of the conic sections, they have exercised a marked influence on the development of mathematical analysis, in the calculation of orbits and the computation of perturbations. They seem now about to reveal to us the existence of forces in the sun that otherwise might never have been discovered. The motion of one, at least, discovers the existence of some opposing force in our system, unfelt, as yet, by the planets, which may yet very much derange the existing state of things.

ART. VIII.—*A Hand Book of Politics for* 1868. By EDWARD MCPHERSON, LL. D. Washington, 1868.

WE have no intention of entering into any elaborate discussion of the respective claims of the candidates for the presidency. It would be entirely superfluous, for there never was a greater disparity between any two aspirants for that high office. Our remarks on this subject shall, therefore, be brief. We are convinced that the most thoughtless cannot compare Grant and Seymour with each other in an intelligent manner without deciding in favor of the former; no unprejudiced person endowed with common sense, and having any regard for his country, would hesitate for a moment to reject the latter. That many respectable men will vote for Seymour—men of talent and ability—we do not doubt; nor do we pretend that they should be regarded as rebels for doing so. It is certainly wrong to vote for an inferior man merely because he belongs to one's own party, but it is a wrong of which all parties are guilty. There should be no abuse, then, on either side, on this ground. It may be freely admitted that it by no means follows that a man is a "rebel," or that he is in any manner disloyal to his country, or its institutions, merely because he votes for Mr. Seymour; but it certainly does follow that he is a political partisan; that he is one who

has not independence enough to think and act for himself, but must think and act as his party requires him.

It is almost needless for us to say that it is not on political grounds we would choose General Grant for the presidential chair and reject Mr. Seymour; we judge each not by his party but by himself. We are in favor of the election of Grant, not because he is a Republican or a Radical, but because he has merited the gratitude of his country; and we are opposed to the election of Seymour, not because he is a Democrat, but because he has merited nothing good from his country. Indeed, we do not regard Grant as a politician at all; he is too honest and straightforward to be one; whereas Seymour is nothing but a politician. This is no mere matter of conjecture or inference. Both the candidates are tried men in a certain sense; one commanded our armies at the hour of the nation's greatest peril; the other was the Governor of the State of New York at the same hour.

Now which performed his duties best? Which proved the most faithful public servant? Which contributed most to vindicate the prestige of the American people as capable of defending, as well as governing themselves as a nation? In a word, did not Grant do all the good which it was possible for any one to do in his position? What more could have been done by Washington himself, could he have lived, to save the life of the Republic of which he was the founder? Nor could the Father of his country have treated the conquered, brave enemy, with more generosity.

What, upon the other hand, did Seymour do as governor? Could he have contributed less towards the salvation of the nation without a flagrant violation of his oath, if indeed he could have done so without rendering himself liable to be put on trial as a traitor? We do not agree with those who accuse Mr. Seymour of having sympathized with the rebels to the extent of wishing that they would succeed in dismembering the Republic. We believe that at heart he was in favor of maintaining the Union; but he had not the manliness to speak and act accordingly. The duplicity and chicanery of the politician clung to him all along. He always took into account the influence he might one day be able to exercise in

the South by a quasi sympathy with the rebels; and it was precisely in the same spirit that he addressed the insurgent mob of New York, as his "friends."

The truth is, that he was a worse enemy to both than those who openly shot them down, because he deceived both and encouraged them to bring ruin on themselves. A large proportion of the rebels thought that Seymour represented the feeling of the majority of the population of the Empire State; and that in time this feeling could not fail to manifest itself in their favor. Far from endeavoring to remove this impression, he did all in his power to strengthen it. The more calm and thoughtful of the Southerners understand this, and accordingly none detest or despise Seymour more.

Many even of the New York rioters, who belonged only to the lowest class, saw when it was too late, that, after all, Seymour was their enemy rather than their friend—they saw that it was their future votes he cared for, not themselves. Had it been otherwise, he would have threatened them with grape-shot rather than encouraged them to fight; he would have told them that there was no reason why they should have any hatred to the poor negro; that if they were poor it was not the negro's fault, and that still less, if possible, was it the fault of the Federal government. But he did nothing of the kind; we will not say that he meant to prompt them to lawlessness and outrage; we do not believe him so base as this, let others attribute to him what they will. But that his conduct was calculated to encourage them is beyond question; and whom did they injure most by the course they pursued? was it not themselves and their families? Even the negroes, the particular objects of their wrath, were not as much injured; one twentieth as many of them were not shot down, or maimed forever; one twentieth as many colored children were not made fatherless by the rioters as there were white children made fatherless by the troops in their perfectly legitimate efforts to protect the lives and property of the peaceable inhabitants.

Yet, we are informed that Seymour and his friends—that is, those who expect to profit by his election—depend largely on the Irish vote. Now, assuming that he did not prompt

many of the Irish to mischief, and their own ruin—assuming that he has done them no harm—an assumption which is certainly not justified by the facts—what good has he ever done them? what real favor has he ever shown them as a people? We know, indeed, that he has made them promises enough, but what promise of any value—what promise that would give him the least trouble or cost him one dollar—has he fulfilled? Nay, what has he done for them in any way in public or private which he would not have done for Hindoos or Hottentots for the same price—that is, for their votes; not the votes they have given, but those that will be needed at a future time, as in the present instance?

It is not known, some say, what Grant may do; he may be prejudiced. But no great soldier like him was ever prejudiced against the Irish. Napoleon and the great Condé were equally friendly and kind to them; even their worst enemies, Cromwell and William III., paid the highest tributes to their bravery and fidelity. Who can say that Grant has ever treated the Irish soldiers in his armies otherwise than in a friendly spirit? What Irishman has he ever slighted or prevented from obtaining promotion, either on account of his nationality or his religion?

We allude thus to the Irish vote, and the influence which should guide it, because, although the class of Irishmen who do most of the voting are not readers of our journal, we have the honor of addressing a large number of the Catholic clergy in all parts of the country, South as well as North; from the humble curé and chaplain, up to the highest and greatest dignitary in America. We know from a personal experience and observation of more than forty years, that, whatever their detractors may say to the contrary, the priests and bishops always advise their people for their good; and this, be it observed, is not Catholic, but Protestant testimony—the testimony of one who spent twenty years of his life where there were very few but Catholics—scarcely a dozen in a whole extensive parish.

Our German friends are somewhat divided at present; but it is certain that the majority will vote for Grant, for they have never lost that admiration of courage and brilliant

and patriotic deeds for which Tacitus gave credit to their ancestors in his *Germania*—a work which will inspire them with redoubled enthusiasm if they will read it at the present time, when it is sought to degrade manliness, valor and patriotism, and elevate charlatanism, imbecility and pusillanimity.

Some pretend to fear that if General Grant were elected he would convert the republic into a military despotism! Who can give the shadow of a reason for any such apprehension? Upon the same ground, Washington should have been rejected; so should Jackson—for both were military chieftains, while their military services were required by their country. If both were devoted to the arts of peace while there was no war, so was General Grant; are not some so thoughtless as to make this very fact a cause of reproach to him? forgetting that the great Cincinnatus of old left the plough in the furrow to go and fight for his country.

Had Grant been ambitious to be a despot he would not have acted as he has. Does any one think it likely that he will ever again have so large an army at his command as he so readily disbanded? It is certain that he will not have a larger, at all events; and it is still more certain that he never will have an army more devoted to him. Had he wished to establish a military despotism, the day that General Lee surrendered was his time. No one need have the least doubt that he could have succeeded then. But did he make the least attempt? Was there anything in his conduct to justify the suspicion that such an idea ever entered his mind?

It is true that many have a conscientious fear of entrusting successful generals with much civil power; but the history of the world does not justify it, as can be easily proved. Thus, of all the generals whose conquests have rendered them illustrious, how many have availed themselves of their power to enslave their country? If three can be said to have done so, it is certainly the most. Assuming it to be true that Cæsar, Napoleon, and Cromwell destroyed the liberties of their respective countries, it must be admitted as an evident fact, that a large proportion of those whom they enslaved, if not the overwhelming majority, were attached to

them to their death. It was not the masses that disliked the rule even of Cæsar; all the Roman historians, without exception, admit that they not only rendered him cheerful obedience as a sovereign, but loved him as a friend and protector; and when he was assassinated by Brutus and Cassius, they wept over him as a benefactor. Then, did the masses of Frenchmen regard Napoleon as having enslaved them? Did they not, on the contrary, almost idolize him? Is not his memory revered by them to this day? Those most opposed to the present emperor at the beginning of his reign, called him *Napoleon le Petit*, lest he might profit by the prestige of his uncle.

That the British people of his time did not regard Cromwell as a despot, is also sufficiently manifest. Seldom has any English sovereign been more popular; nor has any sovereign conferred more glory on England.

Now, here are three instances in all history, of successful military chieftains causing revolutions in their own favor; for these three, at least fifty scheming politicians have usurped the supreme power, and ruthlessly oppressed their countrymen. Upon the other hand, for the three successful generals who took the supreme power into their own hands, fifty equally successful, though not all equally famous, yielded up their power freely after they had defeated the enemies of their country. The great Scipio took no advantage of having completely and finally destroyed Carthage, the only State of her time able to rival Rome, or dispute with her the empire of the world. Hannibal, who was able to maintain himself for nineteen years in the heart of Italy, defeating the best of the Roman generals at the head of their chosen legions, could at any time during this period, have enslaved his countrymen; but although his troops were chiefly foreigners, the majority, Celts and Celtiberians, as we have shown in a former number of this journal, he was too generous to be guilty of any such base act. Then, to approach our own time and country, in all the South American States that have established their independence of Spain, there has not been a single instance of the successful general making himself a despot.

If we inquire who have been the most ferocious and

sanguinary tyrants, we shall find that far from being brave captains they were base cowards. This is emphatically true both of Caligula and Nero. The latter especially, was a great talker; he had quite a voluble and bland tongue; and it is well known that none were more likely to suffer at his hands, than those whom he called his "dearest friends"—*amici carissimi.**

But we do not think there is the least danger that Mr. Seymour will be elected. Mayor Hoffman would have been a much more formidable opponent to Gen. Grant, had he been nominated; vastly more reliance could have been placed on his word; and if elected, he certainly would have filled the presidential chair with more dignity and decorum, as well as with more ability than Mr. Seymour.

There is little doubt that General Grant will be elected; and there need be as little doubt that he will again prove himself worthy of the confidence of the American people. As to his dealing harshly with the Southerners, we do not believe he will. All know that it is not good, experienced soldiers that are constantly in dread of insurrections, but "non-combatant" politicians—persons who would see their country dismembered and crushed rather than expose their precious lives to the least danger.

Let the General provide himself with a good cabinet and all will go well. He certainly should not set aside all the cabinet of Lincoln and Johnson, but calmly take into consideration what each member has done, and what he has not done, as well as his honesty and fidelity, or his lack of those virtues compared with the functionaries occupying similar positions in the great nations of Europe.† Pursuing this course he cannot do otherwise than reject two or three, but especially Mr. Seward, for although we do not approve of vituperation or scurrility, we must admit that Judge Black has pretty faithfully described our present Secretary of State, in his recent letter to the President.

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* *Vide* Tacitus, *passim*.

† Vide review of *Address* of Geneva Chamber of Commerce in our last number; also Art. III. in No. for Dec. 1867.

IX.—NOTICES AND CRITICISMS.

BELLES LETTRES.

Infelicia. By Adah Isaacs Menken. Philadelphia, &c., 1868.

No publisher's name appears on this book; but it is advertised by J. B. Lippincott & Co., of Philadelphia; and on inquiry we have been informed that it is those gentlemen who introduce it to the American public. But we cannot say we are surprised at this. Why would they refuse to become the sponsors of a book so strongly recommended by the author of "Spiritual Wives?" Whatever panders to vice is very apt to pay; we have no doubt, therefore, that Lippincott has made quite a handsome affair of that work. Well may his countrywomen thank him for giving all the currency in his power to Mr. Hepworth Dixon's estimate of their virtue and fidelity!

He has now a still stronger claim on their gratitude, if it be true that it is he who recommends them this book. But some will ask, Has he a daughter, a wife, or a sister? We do not know whether he has or not; nor do we want to make any inquiry about his private affairs. We only judge him by his public acts; we ask, what would be said of the publisher of a sort of autobiography of Lola Montez, written in what is vulgarly called "prose run mad," and interspersed with eulogies from her paramours, the *tout ensemble* being styled poems, and attributed to the heroine?

It may be urged that perhaps Mr. Charles Dickens would not have honored Lola with an autograph letter to be prefixed to her "*Infelicia*," as he has Adah Isaacs Menken, although the former was certainly a more beautiful woman than the latter. Whether she was more virtuous, or as much so, it is not for us to say, although a censorious world has taken nearly equal liberties with the reputation of both. If Lola was not entirely innocent, perhaps Adah was. At least, this must be the belief of Mr. Lippincott; and we all know that an actress of the third or fourth rank is very liable to be slandered, especially when possessed of a certain amount of charms, and imbued with more than ordinary confidence in the honor and fidelity of mankind, especially of men who separate from their wives when they rise in the world!

Be this as it may, the "volume of poems" entitled *Infelicia* is not worth much. Had it been the work of an angel, it could not have done much good; the profane would have said that, after all, ambrosia must be intoxicating, or otherwise it should be concluded that angels sometimes rave, and utter things which neither gods nor men can understand. At all events, we must confess that we do not understand one fourth of the fine "poetry" attributed to Adah; and this one fourth is half "Proverbial

Philosophy," half "Leaves of Grass." It reads as if Tupper and Walt. Whitman had dictated to Adah alternately, leaving her time, however, to introduce some theatrical ejaculations here and there. But our judgment and taste may be at fault; our readers may entirely disagree with us. As a matter of course, one of the best "poems" receives the first place. We will not garble this, but give the whole of the first stanza of "Resurgam:"—

"Yes, yes, dear love! I am dead!
Dead to you!
Dead to the world!
Dead for ever!
It was one young night in May.
The stars were strangled, and the moon was blind with the flying clouds of a black despair.
Years and years the songless soul waited to drift out beyond the sea of pain where the shapeless life was wrecked.
The red mouth closed down the breath that was hard and fierce.
The mad pulse beat back the baffled life with a low sob.
And so the stark and naked soul unfolded its wings to the dimness of Death!
A lonely, unknown Death.
A Death that left this dumb, living body as his endless mark.
And left these golden billows of hair to drown the whiteness of my bosom.
Left these crimson roses gleaming on my forehead to hide the dust of the grave.
And Death left an old light in my eyes, and old music for my tongue, to deceive the crawling worms that would seek my warm flesh.
But the purple wine that I quaff sends no thrill of Love and Song through my empty veins.
Yet my red lips are not pallid and horrified.
Thy kisses are doubtless sweet that throb out an eternal passion for me!
But I feel neither pleasure, passion nor pain.
So I am certainly dead.
Dead in this beauty!
Dead in this velvet and lace!
Dead in these jewels of light!
Dead in the music!
Dead in the dance!"—p. 9.

Is this poetry? or what is it? There are four other stanzas of the same kind, besides the closing one, which is brief and quite sanctimonious:

"How did I die?
No man has wrenched his shroud from his stiffened corpse to say:
'*Ye murdered me!*'
No woman has died with enough of Christ in her soul to tear the bandage from her glassy eyes and say:
'*Ye crucified me!*'
Resurgam! Resurgam!"—p. 13.

Turning over the leaves of *Infelicia* somewhat listlessly, we find a poem "after Ossian," entitled "Battle of the Stars," in which Love is made to do everything great and good. But it will remind the classical reader much more of the atheistic Roman, than of the Celtic bard—especially of the passage in which Lucretius makes all things proceed from "Alma Venus," whom he declares to be the only creator of the universe,—

Per te quoniam genus omne animantum
Concipitur, visitque exortum lumina solis.

But let us see one or two of the numerous good things Love does in the hands of Adah, and how poetically and gracefully his actions succeed each other. It seems that for some reason or other, he is the particular friend of Garabaldi, and the sworn enemy of Austria:

"It is thy powerful hand that lights up to Heaven the inspired life of Garabaldi. And it is thy undying power that will clothe Italy in the folds of thy wings, and rend the helmet from the dark brow of old Austria, and bury her in the eternal tomb of darkness."—p. 43.

Is not this a curious sort of poetry "after Ossian!" We find more curious still, however, as we proceed—such for example as the following line:

"Their black unmuzzled hounds howl their impatience as we come on watch in our glittering armor."—p. 44.

The autobiographic part we leave it to others to extract. The *moral* lessons of Adah, may be very good for a publisher like Mr. Lippincott, but they are not such as we wish to present to our readers. We doubt whether they will pay in any sense, for if they have any charm, it is of a very coarse, *outré* kind.

We would gladly have passed the volume over in silence, but we find it is not alone in the newspapers, it is advertised as the work of a "fast woman." Placards as large as a barn door, are posted in all parts of New York headed in the largest letters "Adah Isaacs Menken," and proclaiming that all should read her "revelations." Whether Mr. Lippincott be the author of the sensational placard, we will not undertake to say; it is quite possible that he has a rival in the business of seeking to make money by dragging before the public what decency and manliness, not to mention respect for the sex, should veil from vulgar gaze.

EDUCATION.

The Scientific Basis of Education demonstrated by an analysis of the Temperaments and Phrenological Facts, in connection with Mental Phenomena and the office of the Holy Spirit in the processes of the Mind. In a series of letters, &c., by JOHN HECKER. Octavo. A. S. Barnes & Co. 1868.

VERILY we Americans ought to be a wonderfully learned people! More text-books are manufactured for us annually than for any other people on the globe. We have now at least five hundred series of "spellers and definers" alone, not to mention grammars, geographies, atlases, etc., etc.; certainly more than the English, Germans and French combined. The last has always new features, all the modern improvements, and of course surpasses all the rest!

We are reminded of these peculiar advantages by the very laborious efforts which some of our enterprising contemporaries are making just now, as the schools are opening, to please the various rival manufacturers of that important class of goods. Alas! for the poor scribes who have to puff good, bad and indifferent alike. If they were our mortal enemies, we could not wish them a harder fate.

Why not imitate our plan, and see if it would not prove the best in the long run; that is, set a price on your advertisements, which, while fair and moderate, will exclude the vulgar. If some of the latter be tempted by their avarice to patronize you still, instead of soap or paregoric, give them a little nitric acid. In other words, if a worthless book is sent to your office, inform your readers honestly that it is worthless. In time, respectable people will patronize you,—the judicious, spirited class, who, far from asking cheap goods for themselves, will not associate with those who deal in such.

The puffers will not be interfered with by us, however, in any more direct or personal manner than this, except they are uncivil to ourselves, and put on airs, which do not belong to them; in which case we might be tempted to show whom it may concern, the precise value and true character of the article in which they deal; for, though benevolent and peaceful in our disposition, we are not a "non-combatant," and have never announced ourselves as such, for any purpose whatever.

But to return to the volume before us. This, we suppose, is the latest improvement. The title-page will give most of our readers a sufficient idea of its character. It seems that in future the rising generation must be taught phrenologically; if not, there can be no success; stupidity and ignorance must prevail. Hitherto phrenology has had to perform its wonders alone; but in future it is to be aided by the Holy Spirit! At least, those who use the work before us will have that unspeakable advantage; and accordingly it is recommended by a large number of pious school superintendents, whose letters are published at the beginning of the volume, so that no one need doubt the miraculous character of the "Scientific Basis."

Seriously, we are surprised at the countenance given the new doctrine by Superintendent Randall and his assistant, Mr. Kiddle, both of whom we have always regarded as sensible, thoughtful men. But it seems the author has once been a colleague of theirs; and it is well known that they are of a benevolent and obliging disposition. We think we do them much more credit by taking this view of the case than we should by supposing for a moment that they really believe the Holy Spirit acts in connection with the new "science."

In every other enlightened country, phrenology is regarded as an exploded theory. At no time has it been accepted anywhere by scientific men worthy of the name; on the contrary such have invariably rejected it.

This our readers will remember we have abundantly proved in a former number of this journal.*

Then are we to palm off on the rising generation as a science what the English, French and Germans have denounced as an imposture, after a most careful and thorough examination of every thing claimed in its favor? But now the Holy Ghost is brought in as an ally of phrenology. We may expect that the next science introduced into our schools will be that of spirit-rapping; that spirit-rapping has more to do with the volume before us than the Holy Spirit, or any truthful spirit, we think we need hardly inform our readers.

Cæsar's Commentaries on the Gallic War, with a Vocabulary and Notes. By WILLIAM BINGHAM, A.M., Superintendent of the Bingham School. 12mo. pp. 348. Philadelphia. E. H. Butler & Co. 1868.

IT always affords us pleasure to recommend a good text-book: and no one of a different character, bearing the imprint on the volume now before us, has ever fallen into our hands. Whether the name of Butler appears on a geography, an atlas, a grammar, a history, or an edition of some ancient classic, we are confident before we open a page of it that, at least, it is no catch-penny. Far be it from us to deny that the Harpers, Ivison, Phinney & Co. and Ticknor & Fields, publish some excellent works; and when we meet with such we most cheerfully recommend them. But we know no publisher more scrupulously or more intelligently careful in his selections of text-books, than Butler; he is the only prominent publisher in America whose publications we have never thought deserving of censure.

We know very well how ready a certain class of minds are to attribute motives both for censure and approbation. It may, therefore, be said that our preference for the publications of this house results from self-interest; but it is a false inference. Many whose books we have criticised have patronized us much more than Butler. Had self-interest been our motive, we would have praised the books of J. B. Lippincott, T. B. Peterson, A. S. Barnes, &c. These are the gentlemen who value puffs, and have as great a horror of criticism as Satan is said to have for holy water. But have we gratified them in this respect? Our readers will bear us testimony that we have always designated the sort of pabulum they furnish by its proper name; yet if they so far improved in their taste and morals as to publish good books, even at the eleventh hour, none would recommend such more cheerfully than we. As it is, we leave the eulogizing of their wares to those who have a stomach for that sort of thing.

We have but little to say of "Bingham's Cæsar;" so judiciously and carefully edited a text-book, needs no homily to recommend it. Some

* *Vide* No. XIV. September, 1863, Art. Spuriousness and Charlatanism of Phrenology.

time since we examined a Latin grammar, compiled by the same gentleman; we found it more in accordance with our idea of what a grammar ought to be than any we had seen for several years, and we took the liberty of recommending it to our educational friends accordingly. For similar reasons we now invite attention to "Bingham's Cæsar," feeling satisfied that it will elicit the approval of any competent educator who takes the trouble to examine it.

The notes of Prof. Bingham are not "copious," but they contain all the information that a student, supposed to have a teacher, ought to receive from his text-book. The vocabulary at the end of the volume is, in every respect, the best we have seen in any edition of Cæsar; nor have we seen a better specimen of the original text in any school-book.

College Life: its Theory and Practice. By STEPHEN OLIN, D. D., LL. D. 12mo, pp. 239. New York: Harper & Brothers.

THERE is much excellent advice in this volume. Teachers as well as students will find it worthy of careful perusal. It consists of seven lectures on the theory and practice of scholastic life, and four baccalaureate addresses, each series being much above the average of the similar efforts of the present day.

OFFICIAL ETHICS.

Letter from the Citizens' Association to George W. McLean, Esq., Street Commissioner. New York, August, 1868.

THE Citizens' Association has undoubtedly done good: we think it has done so with this letter. Sometimes it has made charges which it could not sustain—charges which, in due time, were proved to be unjust and unfounded. This, it will be remembered, was the character of its charges against Comptroller Brennan; and they were dismissed, accordingly, by Governor Fenton. Feeling satisfied that Brennan performed his duties faithfully, we criticised the action of the Citizens' Association, believing that, however well disposed the majority of its members were, it was led into error on this occasion, by parties whose speculations had been interfered with by the comptroller; and this was the conclusion which Governor Fenton arrived at, on mature deliberation, nearly six months afterwards.

So well convinced were we of the integrity and fidelity of Matthew T. Brennan that we thought it would be difficult for any party to produce a man who would protect the public interests committed to his charge so faithfully as he. When his successor was elected we knew nothing of him; we therefore said nothing. Mr. Richard B. Connolly has now been in office nearly two years, and we have never expressed any

opinion of him in one way or other. In the meantime we have not been unmindful of the manner in which he performed his duties. We are not aware whether the Citizens' Association has made any charge against him or not; but the result of our own observation and inquiries is, that we regard him as fully equal to his predecessor in honesty and faithfulness as a public officer.

The charges against Mr. Brennan considerably lessened our faith in the Association; they did not prevent us, however, from examining those which it preferred against the late street commissioner; nor did it prevent us from declaring those charges substantially correct, and urging the removal of the delinquent.

We confess we also thought there was some foundation for its charges against Mr. Richard O'Gorman, our corporation counsel; and we have refrained from discussing the subject only because we did not wish to do so without seeing what explanation he had to offer, and because, if he has ever made one, as he promised to do, it has escaped our attention. It is in order to obviate a similar disappointment that we now take up the letter before us, lest Mr. McLean also may be too tedious in explaining his affair. It is proper to say that we cannot tell, from our own knowledge, whether Mr. O'Gorman really used the enormous number of ink-bottles, and the immense piles of letter-paper, etc., etc., for which he was alleged to have charged the tax-payers of New York. For aught we know to the contrary the bottles may have been broken, and the paper stolen! Other items in his bill against the city might perhaps be explained in a similar manner. What we thought was, that the gentleman occupied himself in giving "counsel" to the public at large, in the shape of speeches and lectures, much more than in giving it in any shape to the corporation. In short, our opinion was that he devoted so much of his time to the former, that he had little left for the latter—and would not this account for his paying those large sums for "assistant counsel?" It should, perhaps, be also taken into account, in favor of our corporation counsel, that his peculiar style of rhetoric requires considerable practice, and that it is liable to be injured by the vulgar realities of life.

But our street commissioner cannot pretend that he has any fine strings of metaphors to manufacture, either for the instruction of the corporation, or that of the public at large. All he has to do is simply to keep our streets and wharves clean and in tolerable order, and for this he is allowed plenty of money; but it is expected by those who pay it, that he will keep honest accounts, and that in making necessary purchases for it he will be somewhat guided by the market-price. The Citizens' Association alleges, however, in the communication before us, that he has forgotten this part of his duty, and it enters into details as follows:—

"It appears, from the records of your department, that from the aforesaid first day of July, 1867, to the first day of July, 1868, a period of one year, there has been drawn from the City Treasury, on your requisition and certificate, the

sum of $77,883 12 for the alleged purpose of paying for repairing certain of the piers.

"Of this sum, $6,705 86 was alleged to be for lumber used in repairing the planking or sheathing of the piers, $3,181 28 for nine and ten inch iron spikes and bolts to fasten down such planking, and the balance, or $67,995 98, for workmen's labour in laying the said planking.

"The first matter of astonishment in regarding these figures is the extraordinary disproportion of material and labor.

Lumber	$6,705 86
Spikes and bolts	3,181 28
Workmen's wages	67,995 98
	$77,883 12

"It thus appears that to lay *one dollar's worth of planking requires eleven dollars' worth of skilled labor!*"

Whether all this be true or not, we cannot take it upon us to say; but if it is, it is clear that Mr. McLean must have rather confused notions of the difference between right and wrong, however well he may understand addition, multiplication, and profit and loss. But in the document before us it is further alleged that our street commissioner employed most men when least work was to be done, and that this happened about election time.

"The records of your department show the following singular facts:

"In July, 1867, you employed fifty-four men, and they laid 30,000 feet of planking on the piers. The next month [August] you hired seventy-one men, who laid less than 11,000 feet. The month after [September] you hired 101 men, who laid less than 7,000 feet of lumber. The next month [October] you hired 154 men, who laid a little over 6,000 feet of lumber, and in November it appears you hired 213 men, who laid only 34,000 feet of planking, while in the month of July before, fifty-four men had laid 30,000 feet."

We entirely agree with the Association, that "these figures tell their own tale, and no comment on them is necessary." The only question is, Are they correct? We have no reason to think they are otherwise; although we should be very glad to see Mr. McLean prove that they are wrong, because the conduct they imply as they stand would be a disgrace, not only to the individual or individuals guilty of it, but to the city of New York. But we will extract one passage more for future refecence:

"This system of overcharging is found as well in the iron spikes and bolts used in repairing the piers, as in the lumber. The spikes bought by you for this purpose, to the amount of 34,279 pounds, were charged to the City and paid for on your certificate at the rate of *nine* (9) *cents* per pound, when they could be obtained at the same time for *four and one half to five cents per pound.*

"But it is in the contemplation of the gross overcharge that the full extent of the wrong done the City can be understood.

"The following brief statement will show it:

You charge for 189,519 feet of lumber	$6,705 86
For 34,729 pounds spikes and bolts	3,181 28
Workmen to lay same	67,995 78
Total for repairing 21 piers	$77,883 12

"While the same repairing should cost:

82,500 feet of lumber	$2,062 50
34,279 pounds of spikes and bolts	1,713 95
Labour, at $10 per 1,000 feet to lay the same	825 00
Total	$4,601 45

"From this statement it appears that the tax-payers are compelled to see their officials expend over *seventy thousand dollars more than is necessary* in and about a single item of the public works."

A pretty co-tly "item," it must be admitted. Now what we would advise is this; let those who squander the public money in this way, be brought to trial as soon as possible, whether they be counsellors or commissioners. If there be no law to punish office-holders for obtaining money out of the treasury under false pretences, then let our citizens convene in an orderly manner and call on them to resign.

The functions of the Citizens' Association are similar to those of the Spartan Ephori, whose duty it was to see that the people were not imposed upon by either the kings or the senate; but it was also the duty of the ephori to see that malefactors were not confounded with benefactors. They were sworn to distinguish the good from the bad; the innocent from the guilty. But is this distinction made in New York at the present day? The best answer to this, is, that no one can charge Mayor Hoffman or Comptroller Connolly with any malfeasance in office, or any abuse of the power with which they have been entrusted by the people, and yet they are constantly ranked in the disgraceful category of "the ring." This is not fair or just; what is worse, it has a vicious influence. Its tendency is to create the impression that it is all the same, so far as reputation is concerned, to those filling public offices in New York, whether they be honest or dishonest, since they will all be stigmatized alike as belonging to "the ring."

But why does not the Association turn its attention to the custom-house? Why not send Smythe a letter? Is it considered imprudent or dangerous to catechise him relative to his army of dark lanterns and dead-heads?

COMMERCE AND HISTORY.

Annual Report of the Director of the Bureau of Statistics on the Commerce and Navigation of the United States, for the Fiscal year ended June 30, 1867. Octavo, pp. lxxxii, 379, Washington, 1868.

All who take any interest in our commerce, or in our progress as a nation, should carefully examine this work; they should not be deterred by the enormous mass of figures which it contains, and of which it is chiefly composed; for it only requires a slight examination of those figures, to see that they speak an eloquent language, and give warnings to which none should be indifferent. It is one of the greatest defects in our system of education, that it overlooks the value of statistics, which

form the basis of every system of philosophy that has any pretensions to truth.

It will be easy to understand this, if it be remembered that statistics, properly so-called, represent a collection of facts; and it is by comparing facts with each other and examining their relations that the most important discoveries are made. Without the study of statistics, no people can understand their own relative position as a nation; hence it is that there are so few statesmen and so much national arrogance. There is no other criterion by which the statesman can be distinguished from the mere politician, or the scientific man from the thoughtless smatterer, than by the attention he bestows on facts which, when taken singly or casually, appear insignificant, calculated rather to lead astray than to guide in the right direction, but which, when classed into series, reveal the most abstruse mysteries.

Exaggerated praise of a people by their politicians, or their press, does them as much mischief as exaggerated praise by their teachers does students. The former as well as the latter become arrogant and boastful. They think that since they already surpass all their neighbors, they need not give themselves much trouble about any greater progress. If upon the other hand they are reminded that they are lagging, or at least, that they will soon be outstripped if they do not bestir themselves, their efforts, and the results of those efforts will be very different.

The latter is the course pursued in the valuable Report before us. Neither the Director of the Bureau of Statistics, nor the Secretary of the Treasury, whom he addresses, is a politician. Both address themselves to stern facts, and show what these facts mean—let the politicians and their aiders and abettors growl or abuse as they will, when the conclusions they arrive at are not favorable to their plans. Everybody knows how much it is the habit with our third and fourth-rate political orators to congratulate us on the immense progress we are making. But the facts show a different state of things. Thus, in commenting on a table exhibiting the domestic export trade of the United States with all countries, in 1860 and 1867, respectively, amounting to over one million dollars, Mr. Alexander Delmar makes the following rather startling remarks:—

"Compared with 1860 our domestic exports for 1867 have *fal'en off* nearly 39 millions of dollars, or over 10 per cent. During the same period the domestic exports of the United Kingdom have *increased* 237 millions of dollars, or 30 per cent., and those of France (proper) 226.2 millions, or 43 per cent. Whatever have been the causes that have enabled Great Britain and France *to outstrip us in their foreign commerce*, it would seem that now no means should be neglected that will tend to at least *restore our lost position*. France has now *double the amount of exports that we have*, the United Kingdom *three times the amount*, and when it is remembered, not alone in its commercial, but in its social and equalizing aspect, what an important agent international commerce has become in the diffusion of intelligence and capital, and in the consequent promotion of peace and happiness, the suggestion derives new force, and demands that it be regarded *with more than passing attention*."—(p. xxxv.)

Very few are ready to believe all this, so prone are our politicians to

pursue the course of a mutual admiration society in this particular respect. As the quack doctors laud the healing art to the skies as superior to all others, while abusing each other as impostors, so do the politicians praise the people at large while vilifying each other. But Mr. Delmar enters into particulars:—

"Descending to details, our exports to the United Kingdom since 1860 have fallen off 13 millions of dollars, or 6½ per cent.; to France, 24.8 millions, or 42 per cent.; and to British North America, 3 millions, or 16⅔ per cent. The percentage of decrease of exports to the United Kingdom is therefore much less, while that of the exports to France and British North America is considerably greater than the percentage of the entire decrease. Our exports to France have fallen off *four times as much in proportion as those to all countries combined;* and to British North America nearly twice as much. On the contrary, our exports to the North German Union, (Prussia, the Hanse Towns, &c.,) and particularly to Hamburg, have increased; the increase, taking the Union collectively, being 6.2 millions, or nearly 42 per cent. A like increase is also to be observed in our small export trade to Belgium; but with these exceptions, our exports to the West of Europe show a marked decline.—(p. xxxv.)

This is not at all agreeable; but we do not think it in the least strange. We have often complained, in these pages, that no government in the world, of any great nation, gives so little encouragement to commerce as ours. It is the duty of Congress to encourage so important a branch of the national industry, and so great a source of national wealth, not to mention its effect on civilization; but when has it done as much as the governments of some of the pettiest states of Europe?—nay, some of the Hanse Towns alluded to in the above extract? It refuses even to aid in establishing a steamship line to carry the United States Mail, in which the public could have confidence, so that three-fourths of our mail matter has to be carried by British, French, and German vessels! The wonder would be if our commerce did flourish, while thus utterly neglected by our government. Let us hope it will be different in the future; that Congress will devote less of its time to party bickerings, which benefit none, but bring discredit on all, and more of its time and thought to the national welfare. It is true that hitherto there were no reliable statistics from which our statesmen could form an accurate idea of our relative position either as to imports or exports; those that purported to be such were only calculated, by the use made of them by our politicians, to foster that assumption of superiority and spirit of arrogance which have now come to be regarded as national characteristics. Referring to what we regard as the source of these feelings, Mr. Delmar truly remarks:

"The public disrepute that attached to the accounts has been mentioned. They had been discredited and assailed by private individuals and the press, and *even officers of the government had not hesitated to impugn their correctness,* in their official reports, and stigmatize them as *worthless.* To ascertain definitely to what extent these charges were well founded was one of the necessities of my office; without it reform was impossible.

"In two words, then, their condition was even worse—much worse—than was publicly supposed, and the law that established this Bureau and that led to an investigation of these accounts will, it is confidently claimed, be admitted as one of the most successful measures of the 39th Congress, and of your adminis-

tration of the Treasury Department, during which, mainly through the untiring efforts of Mr. Commissioner Wells, it was passed."—(p. xliii.)

On this point also we have some interesting details. The Director of the Bureau shows how it was that we seemed to be doing a much larger business than we really were, though our business was really larger than it is now when our politicians would have us believe that we surpass all mankind.

"The 'import' tables published by other countries having a custom-house system are generally so arranged that a distinction is shown between the commodities imported, *i. e.*, brought or landed from foreign countries to or at the home country during a given period of time, and those which passed the custom-house line *into* the home country during the same period of time. But this was not the case with our 'import' account, which was framed to show only the commodities that were *landed* from foreign countries during a given period of time, and did not show the commodities that during the same period of time entered into the country for home consumption, upon paying duties, if dutiable: which might be more or less, in a year, to a very considerable extent. It is, however, the amount of the latter—the commodities entered into the home country for home consumption—that is properly to be contrasted with the exports during a given period of time; and not that of the entries or commodities landed, which may always and properly embrace commodities that are never destined to enter intothe consumption of the country in any way."—*Ib.*

But the Bureau of Statistics is not the only one in which order has been brought out of chaos under the administration of Mr. McCulloch. We wish he could produce a similiar reform in the New York custom-house, for nowhere is it more wanting. But as long as Mr. Smythe rules no improvement need be expected there. The Secretary of the Treasury has done his part in ordering him to dismiss a considerable proportion of those whom, under one pretext or another, he has set to feed at the public crib.

This has greatly excited the ire of the immaculate Smythe. Mr. McCulloch must be very stupid and entirely incompetent to manage our finances because he objects to allow our worthy collector to salary a host of idle, greedy retainers! Mr. Smythe thinks that he is on the safe "popular" side, because, with two or three exceptions, there is scarcely a daily or a weekly paper in New York which is not represented at the custom-house, on the half sinecure list, by an "itemiser," whom it was desirable on the part of the editor to get rid of without throwing him upon the world. Thus Smythe has quite a troop of the dark lanterns of literature always ready to eulogise him as the great friend of the merchants, and to raise a howl of abuse against any one who dares to find fault with his peculiar mode of "collecting."

A History of England, from the First Invasion by the Romans to the Accession of William and Mary in 1688. By JOHN LINGARD, D. D. In thirteen volumes. New York: P. O'Shea.

IT would be superfluous to speak of the merits of Lingard's History; they are now everywhere acknowledged. There is no work we quote

ourselves with more confidence in its honesty and truthfulness. All we mean, therefore, on the present occasion, is simply to say that Mr. O'Shea deserves not a little credit for his spirit and enterprise is issuing so tasteful, convenient and excellent an edition as that now before us.

Portraits of Celebrated Women, by C. A. SAINTE-BEUVE. Translated from the French by H. W. PRESTON: 16mo. pp. 384. Boston: Roberts Brothers, 1868.

HAD this interesting volume reached us in time we should have taken pleasure in reviewing it. As it is, we have only time to say that it will repay a careful perusal. It embraces brief but comprehensive sketches of nine of the representative women of France, including De Staël, De Sévigné, Roland, De Remusat, and De Souza.

APPENDIX.

1. *Ninth Annual Report of the Superintendent of the Insurance Department.* State of New York. *Life Insurance.* Albany, 1868.
2. *Thirteenth Annual Report of the Insurance Commissioner of the Commonwealth of Massachusetts. Life and Accident Insurance.* Boston, 1868.

IT will be pretty generally agreed, by all who take the trouble of examining for themselves, that our State superintendent has treated fire and marine insurance with much more impartiality, intelligence, and ability, in his Ninth Annual Report, than Life Insurance. In our last number we gave a cursory review of his Fire and Marine Report, and had little to find fault with, but much to commend; and we gave our impressions of it accordingly, quoting several extracts as worthy the attention both of insurers and insured. It would afford us pleasure to do the same in the present case, but truth and justice forbid us.

We have not the least doubt that the intentions of Mr. Barnes are honest; but he is not at all times so cautious or skeptical as it is necessary that a man in his position should be. We do not wish to say that he is credulous, but he is too easily influenced by those who combine a certain sort of shrewdness and wiliness with their avarice. That persons of this character should take more pains to influence him than those whom money could not induce to swerve from a straightforward course, is no more than might be expected. This is the secret of the great love Mr. Barnes has for "the exclusively cash system" in insurance, and of his hatred of "the note system." Some, it is true, insinuate that it is not altogether for nothing he has such admiration for the Mutual Life, and its *cash* plan; but this we do not believe. In our opinion he is no more bound in gratitude to Mr. Winston than he is to others, but, as everybody knows, the latter gentleman is very pious in his habits. Our readers

are well aware that no one is more uneasy about the heathen than he; no one talks louder about sending them the Bible than the president of the Mutual Life. Then, when it is remembered that Mr. Barnes is also somewhat pious, it will be easy to account for his admiration without impugning his integrity.

But will this satisfy those whose system Mr. Barnes condemns? Have the note companies no reason to complain because the superintendent is "conscientious" in representing their plan as comparatively worthless? There are those, indeed, who carry on their business on the note, or part note plan, in whom we have little faith, but there are those who boast of carrying on their business on the exclusively cash plan in whom we have still less faith, if possible. Yet we do not condemn either plan as such; there are good, honest men on each side; but there are certainly more on the note side than on the cash side—ten to one—as we can easily show, in the course of our remarks.

We have already seen that it is not those who are really the best men that always appear such, even to a public functionary so well disposed as Mr. Barnes. Men conscious of their integrity and rectitude of conduct have no fear of the officers of the law; they do not deem it necessary to take any pains to conciliate them. For the opposite reason, others are constantly seeking to ingratiate themselves. Now who are they that take most pains with Mr. Barnes? Who get up dinners for him? Who visit him at Albany? Who send him presents? Who are not content with merely affixing their own signatures to a memorial to the Legislature for his reappointment to office, but go about among their friends to get as many more for him as they can? Then, upon the other hand, who are they that treat Mr. Barnes like any other gentleman with whom they are acquainted, without making any particular fuss about him, whether he is in town, or out of town?

We all know that the most amiable dispositions are liable to be rendered very unamiable under certain circumstances. Thus, a young lady who is in the habit of being praised for her charms by all who approach her, will regard herself as slighted and offended by those who address her merely as politeness and good breeding require; and public functionaries have been greatly misrepresented in all ages if they are not very much like the young lady in this respect.

There are several companies by which Mr. Barnes has been "slighted" in this way. By none, we believe, has he been more slighted than by the Knickerbocker Life, the New England Mutual Life, and the Ætna Life, although none are more courteous; that is, their slighting has consisted in not making any fuss about our superintendent. Evidently they did not think there was any need; nor have we heard that they have changed their mind on that subject. But they are note companies; although, when an insured life drops, and money is fairly claimed, no cash company, either in America or Europe, is more ready or willing to pay the cash than they. Nor are the Manhattan Life, the Mutual Benefit

Life, the Phœnix Mutual Life, the Charter Oak Life, the National Life, the Continental Life, and the Security Life—all note companies—less willing or ready. Yet, as we have said, the note system does not please Mr. Barnes.

Once or twice we have had occasion to make some criticisms on Mr. Elizur Wright, though never on his views on insurance, which we have always regarded as sound. As to his integrity, we should have required no better guarantee for it, had we never had any other knowledge of the gentleman than that he has been for years the actuary of the New England Mutual Life and of the Knickerbocker Life, and has frequently acted as the accredited representative of the president of the former institution. For these reasons we do not quote his testimony the less cheerfully now, on the subject under consideration, for having formerly differed with him on minor points. A friend having called our attention to a paper of his in one of the insurance journals, we have read it carefully, and we fully concur in the views he embodies in the following passage:

"But when Mr. Barnes, either on his own motion, or *that of interested parties*, levels a battery charged with figures, that *ought* never to lie, against an American improvement in Life Insurance, he does a positive injury. And he does deliberately aim to sap the foundations and destroy the credit of *more than half the companies* doing business in the State of New York, by arguments which are *specious to popular prejudice, but utterly fallacious*. The agents of a *particular class* of companies are now, in fact, circulating a portion of Mr. Barnes' report as a 'cheap tract,' to ruin the credit of all the rest. This work of detraction, not to say wickedness, is confined, I believe, to what are called "all cash" companies. The magnitude of the intended mischief will be seen by the statistics of the '*part-note*' companies, *against which it is directed*. Of the forty-four companies included in Mr. Barnes' report as doing business in New York, twenty-five come, more or less, under this censure and rebuke, *for taking a part of the premium in the note of the insured*. Their business compares with that of the other companies thus:

	Companies.	Amount Insured.
Part note	25	$816,477,112.28
All cash	19	345,252,663.99
Total	44	$1,161,729,776.27

"The 'part-note' system, was, I believe, an American experiment, rather blunderingly initiated, to be sure, but the figures above look as though it might be a success. I believe it so, and that it has resulted in *a most valuable improvement upon life insurance*—even with 'all cash' payments—as heretofore practised in the mother-country. That is, we owe to this great experiment the protection of *all* the policy-holders in this country, in a great measure, against the injustice of forfeiting, in case of discontinuance, their *self-insurance fund*, or the money they have paid beyond the risk and expenses which the company has actually borne. But Mr. Barnes gives the whole weight of his official opinion, together with a most remarkable table of figures (*see* his Report, lxxv.–lxxviii.) to sustain the charge that there is something rotten at the foundation of all this eight hundred and sixteen millions of insurance."

In point of fact, the rottenness is on the other side. We really cannot remember a single cash company whose policy we would accept as soon as that of the note companies we have mentioned, with the exception of the Equitable, which we readily admit is not surpassed either in its ability

or willingness to pay all legitimate claims. But let us mention a few other cash companies—such as the United States Life, the Universal Life, the Widow and Orphans' *Benefit* (?) Life, and the Traveler's Life and Accident. Is it these we are to regard as models, according to Mr. Barnes? or are we to regard them in that light merely because they are imitators of the Mutual Life?

What our opinion of the superintendent's favorite is, our readers have known for years, for it remains unchanged. We have never denied that it has a large pile of money,—though not more in proportion to the claims upon it than many other companies we could mention—really less than several; but we have always maintained that it has very little principle, if any. The difference between it and the other "all-cash" companies we have mentioned is, that they are very nearly as deficient in money as they are in principle; so that they have to make all sorts of shifts to show large "assets." It will be remembered that one of Batterson's items in last year's report was "exchange for equipment," or some such imaginary contrivance; but the same gentleman has some items in his last report which are equally spurious. Thus, for example, in a line with "furniture and fixtures" he puts $12,000—that is, we are to regard this amount as a part of the Traveler's "assets"! Need we say that if the "furniture and fixtures," including the portraits and biographies of the worthy president, were sold to-morrow to the highest bidder they would not bring $2,000 — scarcely $1,000 — let alone $12,000: perhaps not more than the amount put to the credit of "internal revenue stamps" in the same report, namely, $242.58. Still, we have no doubt that the furniture and fixture item makes as near an approximation to the truth as many other things set down as "assets" in the same document.

Another of the cash companies has had to retire from Massachusetts on account of its capital being "impaired." Our readers are aware that we had never much confidence in the Universal Life. It will be remembered that it first undertook to insure those laboring under all kinds of diseases, but its enticing offers were not accepted, even by those in the last stages of consumption, except in very few instances. In time, it had to try a new plan; that too, it seems, has failed, notwithstanding the wonders it was to have accomplished, and to which we called due attention. It is certainly no wish of ours that this should be its fate; we only speak of passing events as a journalist and reviewer; as one comparing different systems with each other with the view of showing all whom it may concern, the amount of public confidence to which each is entitled.

Were we only to give expression to our personal feelings there are few whom we should wish better than the secretary of the Universal Life. Most cheerfully do we admit that there are not many in the profession who understand life insurance better than Mr. Bewley, and that still fewer possess more general intelligence. But it is not those who have most

knowledge and talent, but those who have most money, that exercise most control in a certain class of insurance offices. One possessing $5,000 has five times more power, of a certain kind, than one who has only $1,000, though the latter possess ten times as much of the power that comes from knowledge.

The Universal may still continue to live on for years, but, except its secretary is much better aided than he has yet been, it will never justify its title. At all events we have nothing further to do with it than to present it as a specimen of an "all cash" company.

Nor can much better be said of the Widows' and Orphans', which Mr. Barnes himself has found it incumbent on him to censure for reporting fictitious assets. "It was stated," he says, "in the last report, that the item of commuted commissions constituted an asset of a questionable or *fictitious* character," &c. On this he makes the following comment:—

"Notwithstanding these views thus expressed the following Companies have made the same returns this year, as follows:—

North America, Agents' annuities	$127,564 98
Washington, commuted commissions	25,000 00
Widows' and Orphans,' commuted commissions	21,800 00
World, commutation of Agents' commissions	5,970 47

Under our statute no such investments are recognized or allowed."

Now our readers may remember that there is not one of these four companies which we have not criticised in this journal for similar practices; nor is there one of them whose capital is not marked "impaired" in the report of the Massachusetts commissioner now before us. But we have to do at present only with the "all cash" companies, and be it remembered that Mr. Raymond, president of the Widows' and Orphans', is a pupil of Mr. Winston, the great model of our superintendent.

As for the United States Life, the last of the specimens we shall give for the present, our readers know it of old. A precious model, truly! they will say. But to this they may add, that after all there is a peculiar fitness in designating such companies "all cash" companies, since they would convert even the broomstick into cash, and report it as an asset for about twenty times its value. It is the habit at the present day to regard the alchemists of old as either fools or knaves, for having pretended to transmute the baser metals into gold in their crucibles; while our assurance alchemists pretend to transmute their worn, dirty carpets and lame chairs—many articles that have no existence—without any crucible—if not into gold, at least, into money!

But even the particular favorite, and chief model of our superintendent, is admitted to indulge, occasionally, in those little legerdemain tricks.

"One Company, the Mutual Life, has in its own annual Report *to policy holders* (made January 31st, 1868) *included this item as an Asset* to be written off and cancelled in the space of three years; in the annual Statement to this Department no such item appears in its Assets."—*Ins. Supt. Ninth Ann. Report*, p. lvii.

This may be excused, of course. Accordingly, the comment of Mr. Barnes is exceedingly mild. "This," he says, "is a much less objectionable course, *as the fiction disappears from the books in three years*," (p. lvii). One would think that if a fiction ever does harm it would be likely to do at least a part of it in three years. But another fiction gets on the books then; most probably the fiction is multiplied, and it is presented to the policy holders as no fiction, but a veritable "asset" of the great Mutual Life!

In the same passage from which the above extract is taken, Mr. Barnes admits: "Neither does the item appear *in any manner as an asset* in the last annual statement of the Manhattan." That is, the Manhattan Life, seeing that so many other companies used the item alluded to as an asset, very naturally thought it had a right to do the same; but as soon as it is objected to by the superintendent it is at once discarded by the Manhattan. The Mutual Life omits it in its statement to the superintendent, *but makes full use of it in its statement to its policy holders.* Here we have, on Mr. Barnes' own showing, the difference between a note company and an "all cash" company.

Now let us view the matter, for a moment, in another light. It will be admitted that the manner in which companies meet the legitimate claims upon them is a very good criterion whereby to judge of their worth. In speaking of the life insurance companies of other States, the superintendent recognizes the integrity of the New England Mutual Life, as follows:

"Under the able but extremely conservative guidance of that accomplished jurist, Judge Willard Phillips (to whom the profession are so much indebted for his many learned and comprehensive works on Insurance), the Life Policy was popularized in the offices, counting-rooms, banks, workshops and firesides east of the Hudson; and *no bank-bill or State bond was ever more sacredly regarded than the Policies underwritten by Judge Phillips.* The idea of fraud, deception or overreaching was never associated with the parchment containing his sign-manual. Thus the mere number of policies issued by the New England fails to measure *the extent or usefulness* of his early labors in establishing *this inestimable blessing* on a sound basis in New England heads and hearts."—pp. cxiii.-xiv.

We do not deny one word of this; on the contrary, we cheerfully admit that it is strictly true. Judge Phillips was an exemplary underwriter; but not more so in any respect than his successor. The "sign manual" of Mr. Stevens is as good as ever was affixed to a policy of insurance; and never was the New England more emphatically an "inestimable blessing" than it is at the present moment. Yet the New England is what is called a "note company;" it is not, like the Mutual Life, the Universal, the Travelers', &c., an "all cash" company.

The praise of the superintendent would doubtless be of some value, if he exercised a little discrimination in its use. In other words, if he only praised companies like the New England, his praise would be right enough, though not at all necessary; but he lauds to the skies com-

panies that can scarcely be said to have even commenced business. We need not go beyond the first page of the life Report before us for an example of this:

"The Excelsior, the Standard, and the American Tontine exhibit the signs of a healthy vitality, and are managed by *able and energetic executive officers.*"

Is this puffery or is it not? Only one of these companies is a year old—the oldest was "organized" May, 1867. Another dates only since January, 1868. We should like to know who are "the able and energetic officers?" Is it Mr. Elliott, Mr. Dawes and Mr. Ward? If so, what sort of ableness do they possess? Is it ableness to quack, quack, or ableness to manufacture "assets?" Be this as it may, the capital of one is already branded as "impaired" by the Massachusetts Commissioner.* Of the Tontine "officers," we know nothing, further than that they have graduated in the Bowery, and will therefore say nothing, until better informed; but the ableness of the Standard and Excelsior people is simply ridiculous.

It seems never to occur to Mr. Barnes, that there may be too many companies at the present ratio of increase, although in the Report before us he announces eleven new companies (p. liii.). Has he never heard of the petroleum companies that multiplied so wonderfully only two or three years ago? companies that used to count their capitals by millions! *Where are those establishments now?*

Can the experience of England in the insurance business teach him no lesson? How many insurance companies have disappeared in that country during the last three years? How many in France and Germany? In speaking of the question relative to funds, as one which "*every policy-holder, and every one solicited to become a policy-holder has a right to ask*," adding that, "*shrewd men are asking it every day, and not a few*," the Massachusetts Commissioner very pertinently remarks:

"But almost everybody knows that in England, where the system has had time to show its weak as well as its strong points, neither managers of *high and titled names, and blood removed but a few degrees from royalty*, nor actuaries the most profoundly versed in the mysteries of the science, *have saved scores of life insurance companies from bankruptcy, and thousands of confiding policy-holders from just such cruel disappointment*"—p. xi.

Many a time we have been abused in the grossest manner, both in the insurance journals and in pamphlets got up for the occasion, by companies that are already in the throes of death, for making just such observations as these. We particularly call the attention of our readers to the fact, that the English plan of picking up great names to figure in long lists of "directors" and "trustees," is now being tried on a large scale in this country. It is well known that some good men allow their names to be used in this manner; because, judging others by themselves, they have no suspicion of the motives of those who seek their influence.

* Vide p. lxxxvi.

The experience of English writers on the subject is, that it is *much safer* and *bet er* to *protect* established companies, *known to be honest*, than to encourage a horde of speculating concerns. Not that we would make such an absurd statement as that all new companies must be dishonest or faithless; on the contrary, we hold that there are those never thought of yet, which will take rank with the best in the world. What we maintain is, that none should be recommended as possessing "a healthy vitality" without a careful, *searching* examination.

It has been well observed by Coleridge, that "*praises of the unworthy* are felt by ardent minds as *robberies of the deserving*." But to no class does this apply so forcibly as to underwriters. It is because good and bad are praised alike—the latter often much more than the former—that so many still regard all underwriters as speculators. We may remark in passing, that the best reply we have seen to those who argue against life insurance on this ground, we have met with in a paper translated from the German, by Dr. Henry Lassing, the accomplished superintendent of agencies of the Knickerbocker Life, and from which we extract the following fragment for its truthfulness and justice:

"You have forgotten the great pioneers of art and science, and the heroes of liberty, who have risked and sacrificed health, wealth, and life, for truth, justice, and the good of mankind. Have not the founders of academies and colleges devoted to learning, art, and science—of medical, moral, and charitable institutions—truly benefited the world? Have they not often given their time, learning, strength, skill, and wealth to these noble projects, without the slightest expectation of gain, or wish for pecuniary recompense? There are men, therefore, who can do good without desiring thereby to fill their pockets. The best achievements are performed, not by selfishness, but by self-sacrifice."

Turning over one page in Mr. Barnes' Report, we find another *morceau* like that about the Excelsior, Standard, &c.

"The registered Policy system, *inaugurated by the North America Life Insurance Company*, in July, 1866, has been adopted by the Atlantic Mutual of Albany, the Metropolitan and the Globe Mutual of New York, *thus making four Companies now transacting a portion of their business on this deposit plan*" —p. liii.

A great piece of information, truly; a thing "inaugurated" and "adopted" by such companies must be valuable! Morgan, of the North America is a model underwriter, though he does persist in manufacturing fictitious "assets," and yet cannot prevent his capital from becoming "impaired." He has Mr. Barnes' picture on his policy beside his own; he is also the great talker of the Chamber of Life Insurance, and he is said to excel all his brethren in getting up dinners to do honor to certain functionaries.

Guy R. Phelps is another regular attendant at the "Chamber," who is fond of hearing himself talk, and no one sets higher value on a puff, or is more disgusted with those who refuse to gratify him in that respect. But what higher praise could Mr. Barnes bestow than to compare anybody or anything to his favorite and model? and in the volume before

us, he says: "In the amount and extent of its business, this Company ranks next to the Mutual Life, in this country" (p. cxv). This, of course, is very handsome, but it is not enough. In the same paragraph our superintendent adds: "Dr. Phelps has been the *chief executive officer and manager* of the affairs of this *important corporation* from its organization, and *is now its President.*" This is worth at least a basket of the "tomato pills."

Now everybody knows that the officers of the Ætna Life, Phœnix Life, and Charter Oak Life, are very different in their ideas of justice, decency, and fair dealing from those of the Connecticut Mutual. We do not go beyond Hartford to test the soundness, or rather the unsoundness, of the distinction which our superintendent would confer on the Connecticut Mutual. If we compared New York companies to "this important corporation," it might seem that we were actuated by local prejudices, whereas the truth is, that there are three life companies in Hartford in whose policies we have as much faith as in those of any other institutions in the world. In speaking of the "all cash" companies, we remarked that there is no better criterion whereby to judge of the worth of an insurance company than the willingness with which it pays those who have claims upon it. We will now enable our readers to judge the Connecticut Mutual by this test, as compared with three other Hartford companies, furnishing data from one of Mr. Barnes' own tables. Thus we extract as much of Table XIII. as shows what amount of claims has been "resisted" by each of the four companies mentioned, during the past two years:

NAME OF COMPANY.	YEAR.	LOSSES RESISTED.
Ætna Life	1866	.....
"	1867	.....
Charter Oak	1866	.....
"	1867	.....
Phœnix Mutual	1866	.....
"	1867	.....
Connecticut Mutual	1866	$10,000 00
"	1867	52,500 00

Thus, opposite to each company there is a blank; no loss is resisted until we come to the Connecticut Mutual; then we find resistance on a large scale. If we go back a year farther (1865), we shall find that according to the same table, $18,000 has been "resisted" by the Connecticut Mutual.

We are not in the least surprised at this, however, it is just the state of things we had expected before we saw any table. The above record is precisely in accordance with our own experience. We have had dealings with each of the four companies; each paid promptly and courteously all it contracted, until it came to the turn of the Connecticut Mutual, which, instead of paying what it agreed to pay, sought to frighten us by threats and insulting language! According to the best legal authority in Connecticut, we could compel the payment of our little affair, but according

to the laws of the State, we should have to deposit an amount equal to the probable costs of a suit, before taking any further proceedings, attend at court we know not how long, &c.; so that at the time we got a decree for the amount due, it would hardly pay for our loss of time alone, not to mention lawyers' fees, costs of court, &c.

We do not entertain the slightest resentment, however; or any stronger or more active feeling than contempt and scorn. We refer to our own case simply by way of illustration, as we would to any other with which we were equally familiar. The best companies have to resist some claims, but the distinction of the Connecticut Mutual is that it resists more than any other company in the United States, or, so far as we are aware, in the world.

We may remark parenthetically, that the Connecticut Mutual and the New York Mutual always remind us by contrast of the New Jersey Mutual Benefit. The two former are constantly abusing each other; when tired of this both attack their New Jersey rival with equal violence; whereas, it is but rarely that the Mutual Benefit deigns to notice the attentions of either. It deems it much wiser, as well as more respectable, to remind the public calmly, without any disparaging statements of others, that in one year (1867) it has paid claims by death to the amount of nearly a million, $825,419; that it has paid dividends to members to the amount of over $6,000,000; that its assets amount to $15,000,000, &c. We are convinced that it could also say, that it makes no contract which it does not honestly fulfil.

It is somewhat singular that the favorites of Mr. Barnes are those who make the largest display of assets, whether "realized" or "unrealized." If he pays a compliment to a company that is not fond of display of any kind, as if his object were to seem impartial and just, he makes it refer to some officer who is no longer connected with it. Of course there are exceptions, such as the North America *et hoc genus omne.*

Sometimes he speaks rather slightingly of our very best companies; that is, of companies which slight him in the manner described above. We have richer companies, perhaps, than the Knickerboker Life, but not one that is safer or more substantial—not one conducted with more intelligence or ability. Even in point of riches, four millions and a half ($4,500,000) is not a small pile. The half million has accumulated within the present year. If we had any just claim on the company we should feel just as sure of our money as if we had deposited it in the National Park Bank, and had it certified by Mr. Worth. As the superintendent seems to have overlooked the recent statistics of the Knickerboker, we beg to remind him of their ratio of increase during the past three years:

	New Policies Issued.	Amount Insured.
1865 . .	2,447	$6,557,850
1866 . .	5,450	17,000,000
1867 . .	10,284	31,310,725

These figures are expressive enough. It is not long since the assets of the Knickerbocker were small; although the day they were smallest no policy-holder could say but they were sufficient to afford him the full amount of his claim. Indeed, this is one of the principal reasons why they have increased as follows:

1865 . . .	$853,709
1866 . . .	1,569,929
1867 . . .	4,000,571

Now, it is a company that makes such progress as this, without any quibbling; that is always ready to pay just claims, and always courteous and agreeable, not only to its policy holders, but to all who have any dealings with it, which we regard as a model; and we are pretty sure that its policy holders view the subject in the same light.

Fortune seems propitious in this particular part of Broadway. The Manhattan Life, nearly opposite the Knickerbocker, is also making rapid strides. The Massachusetts commissioner reports its assets as nearly four million and a half ($4,305,113), and its surplus fund as over half a million ($585,270). The National Life (New York), has lately made several heavy payments; but it has plenty of cash left—a larger amount in proportion to the claims upon it than some of its neighbors that boast of their millions. Mr. Barnes reports its assets $292,388 41, and Mr. Sanford reports its guarantee capital $154,154. The Security also makes a good figure at home and abroad. Mr. Barnes reports its assets as over a million and a quarter ($1,286,390 24). Mr. Sanford reports its income for fourteen months, $1,016,661; and its surplus $152,532.

We do not altogether like the account Mr. Barnes gives us in Table XIII, of the New York Life; but we have no data that would enable us to prove that he is in error, as we are pretty sure he must be in this case. If not who is to blame? Surely not the president, whom we have compared more than once, in certain particulars, to Franklin the philosopher. Then Mr. Beers has been promoted, and we congratulate him on having attained the vice-president's chair. It cannot be that the gentleman so worthily rewarded has committed the blunder alluded to. We must only wait until we learn; in the mean time we have strong faith that the assets of the New York Life will bear a searching examination.

But Mr. Barnes is not more ingenious in hinting faults on the part of those who do not appreciate him than he is in inventing compliments for those who do. Thus, for instance, in speaking of a concern entitled the Brooklyn Life Insurance Company, he says: "Among the twenty corporators of this company are the *names* of Christian W. Bouck, Henry R. Pierson and Jonathan D. Steele" (p. civ.). These names are, of course, a tower of strength! but it is well to understand that Mr. Bouck is president, and that he values a puff at nearly as high a figure as the "tomato pill" man.

In the same "appreciative" spirit, Mr. Barnes tells us that among the

corporators of the Widows and Orphans' Benefit Life, is the name of Henry A. Smythe. Now the importance we attach to the name of Smythe, our worthy port collector, is that we think it sufficiently accounts for the impairment of the capital of the Widows' and Orphans', to the extent of $100,318; that is $318 more than half the whole affair!* But we will give one more example of this kind—the case of the Excelsior Life—of which we are told: "Among the corporators are Samuel T. Howard, T. G. Churchill and Eliott T. Shepard" (p. cxi.). Who can doubt the stability of the company after this? Surely the Massachusetts commissioner must be mistaken in announcing that it is already suffering from atrophy of the heart!

Per contra, not a word is said under the same head of the names found among the corporators of the Continental Life; but the president of this separated from the North America, and its secretary separated from the politicians. How their company stands to day, when it is only two years old, is best shown by the following figures:

Policies issued to Sept. 1868,.....	9,054
Amount insured,.....	$25,000,000 00
Income, over.....	2,000,000 00

This shows remarkable progress, but not more than we confidently predicted in the very first number of our journal issued after the company commenced business. It was not its capital or wealth that inspired us with this faith, but the intelligence, energy, and abilities of its officers.

Another company whose success we predicted on the same grounds, is the Globe Mutual Life. We did so, it will be remembered, while criticising those that commenced at the same time, and whose capitals are now officially reported "impaired." We do not pretend to any peculiar foresight, or prophetic gift in making these statements, but simply to the exercise of our reason and judgment on the results of inquiry and investigation. We give our views of men just as we do of books. If we meet with books that are worthless, we give no opinion of them except they are calculated to do mischief; worthless men we pass by in silence in the same spirit, except we think they are about to do harm. In this case we never shrink from warning those who may become their dupes. Upon the other hand, when we meet with a good, instructive, standard work, we are glad to recommend it. We regarded the president of the Globe Mutual in the light of a book of this character, because we had known him for many years as an underwriter distinguished for his energy and integrity, and as a veteran in the profession; and we gave our impressions of him accordingly. In an interesting pamphlet now before us, we find it amply proved that we were right in this; it is shown from official reports that while other companies, organized at the same time, were diminishing their capital instead of increasing it, the Globe Mutual was

* Vide Mass. Com'a. Report, p. lxxxvii.

steadily advancing in affording protection and strength to itself and policy holders. The following figures exhibit the ratio of this advancement for the past three years and six months more eloquently than any words we could use:

	NO. POLICIES ISSUED.	AMOUNT INSURED.	ASSETS.	INCREASE OF ASSETS OVER PREVIOUS YEAR.
1864 6 mo.	1041	$3,072,957	$214,725.11	$114,725.11
1865	2761	8,025,734	469,009.12	254,284.01
1866	3046	7,995,631	786,248.02	320,239.50
1867	2491	6,103,891	1,171,193.56	381,944.94
			Total Increase	$1,171,193.56
			Add Capital	100,000.00
				$1,171,193.46

Glancing at another table we find that of twenty-one life companies none have equalled the Globe in the number of policies they issued in four years. Thus for example while the Mutual Life issued 3,219 policies, the Guardian 2,523, and the Washington 1,427, the Globe issued 10,971—considerably more than the three combined.

But although we take some pride in seeing our predictions fulfilled, we shall never be the less willing to acknowledge that we were mistaken in any particular if we see just cause to do so. To-day we compare the management of the Globe Mutual to that of the Knickerbocker, the New York Mutual, the Ætna, or the Phœnix Mutual, because we think it deserves it; to-morrow we would compare it with the management of The Traveller's, the World Mutual, the Widows' and Orphans', &c., if we thought it pursued the same course as they. But to return to the volumes before us:

Upon the whole, we prefer the report of Mr. Barnes with all its faults, to that of any other superintendent or commissioner. If he had to be appointed to office again to-morrow, we would not oppose him in any manner; we would only take the liberty of offering him a little advice. We would hint to him that he ought to leave the business of puffing insurers who need to be insured themselves, to "the Insurance press"—at least, not to praise companies for their "vitali y" that are dying of consumption; and not to use more than one capital letter for every twenty or thirty he does now.

The tables of Mr. Barnes are much more interesting as well as more valuable than those of Mr. Sanford, but the latter understands the difference between the "all cash" system and the note system better than the former. We entirely agree with the Massachusetts commissioner that the notes of policy holders are "a *perfectly safe investment* and a *perfectly good asset* for the purposes of the company."

Other views are put forward by Mr. Sanford, which are equally sound and worthy of attention; at the same time his report is by no means faultless. Whom did he expect to benefit, for example, by the two full

pages (vi. and vii.) which he devotes to the retirement of the Universal Life? Is not the whole affair very much like what is vulgarly called a "white-washing operation"—rather slovenly white-washing, too?

Batterson's two concerns receive a rub of the same brush; and we suspect they stand in need of it quite as much as the Universal Life. Mr. Sanford tells us that there were once eleven Accident companies doing business in Massachusetts, but now there are only two. Four died of inanition; the stern integrity of the commissioner forced another (The Provident Life and Investment Company, Chicago) to retire from the State because it would not parade all its assets at Boston; three others have transformed themselves into purely life companies, &c.; so that only two remain now, namely the Traveller's and Railway Passenger's.*

Some men retire from business altogether rather than indulge in the manufacture of fictitious assets; others, having rather a liking for that sort of manipulation, continue to carry on their traffic, picking up as much money as they can and paying as little as they can. Which are entitled to most credit? In the opinion of Mr. Sanford, "No less credit is due to *the company or companies* that have endured from the first to the present time" (p. cxvii.). Batterson, be it remembered, is the "company or companies," "the original Jacobs," that has *endured* in this laudable manner; and although we should prefer to see him pay his debts first, we should not have the least objection to his receiving a medal of India rubber from all the railroad presidents of the United States, who have excluded his agents from their cars as moral and physical nuisances.

But we never need go beyond Hartford for a counterpoise against those who would palm off wooden nutmegs for the real fruit. We have indicated the Ætna for this purpose, in giving our views of "resisted losses." With equal faith we now indicate the Phœnix Mutual Life and Charter Oak Life as abundantly strong to afford protection against all other defective concerns of the same city. In proof of this, we need only refer to the official reports of New York and Massachusetts. Thus one shows that the total assets of the Phœnix amount to $2,134,344 29;† the other tells us that it has a surplus for its policy holders of nearly half a million ($488,226).‡ Sanford reports that the Charter Oak has an income of $2,375,694, and a clear surplus over its capital of $408,280.§ These last figures will be the better understood by the general reader, when it is remembered that in the same column in which they stand with the sign *plus*, + prefixed to them, the Connecticut General is distinguished by a *minus* — mark as follows: — 27,899. That is, the one has so much more than its capital, the other so much less. The difference will

* Mr. Sanford ought in common justice to have remarked that the Provident Life and Investment has, after all, proved a much more honest company than those which he was kind enough to allow to remain; but this would perhaps be a little too cosmopolitan for him. Be this as it may, there is little fear of the Chicago company as long as it has so prudent and skilful an engineer as Mr. Charles Holland to guide it.

† Barnes, p. lxxvii. ‡ Sanford, p. lxxxvii. § *Ib.*

perhaps be still more obvious if it be remembered that the Connecticut General is an off-shoot of the Connecticut Mutual, and that Guy R. Phelps is the actuary of the former, as well as the president of the latter.

But the Chamber of Life Insurance will settle all difficulties in due time; that is, after about two thirds of its very small number of members are weeded out. Even then, it will require strong fumigation. But as long as persons like Morgan, Phelps and Eadie, are its high priests, instead of commanding respect, or inspiring confidence anywhere, contempt, scorn and ridicule will be the chief fruits of its labors. This is no new prediction on our part, but the literal fulfilment of one which we made nearly two years ago—the very first time that Morgan took the chair which Mr. Stevens declined to occupy. We have since steadily maintained that such silly twaddle as invariably emanates from the "Chamber," could lead to nothing but disgrace and failure. Accordingly, one of the very small minority, endowed with common sense, who occasionally attend it, but who should have followed the example of the president of the New England Mutual, in shunning it as a plague spot—though offered its highest honors—is reported as having spoken as follows, at the last meeting held at Saratoga, and attended by less than a dozen persons, including high-priests, doorkeepers, assurance editors, &c.:

"MR. FREEMAN stated his belief that the success or failure of this Chamber depended on action to-day. If there were none *it must be regarded a failure.*"

If any "action" took place further than that of eating and drinking, and of mutilating the English language, we have heard nothing of it. The best actions for those twaddlers and mountebanks, would have been to go home and pay their debts, and try to get new recommendations from Barnes, the fourth-rate bank cashiers of *Troy*, the receivers of broken-down companies, &c., &c., certifying that they are honest men, and not charlatans, depending for success on the credulity of the public!

We find that we shall have to defer our notes of Fire and Marine insurance until our next number; we trust we shall be the more readily excused for this, from the fact that we devoted more attention to those departments in our last, than to Life insurance.

We may remark briefly, that the relative conditions of the good, bad, and indifferent have not altered much since our June issue. If the incendiaries will only keep quiet, even those in the most feeble state may be expected to be "smart" again, at least in appearance, by spring next. Then Barnes and Sanford may be ready to give them a recommendation to serve them as a doctor's certificate does the soldier who wants to shoulder his musket for the protection of his country, when there seems to be no danger of war.

As another Washington Insurance Co. is mentioned above, in one of our extracts from Barnes' Report, as among the "impaired," it may be proper to mention in passing, that it is *not* the Washington Fire which

issues its mantles of protection from the corner of Broadway and Maiden Lane, as all our readers may not be aware of its strength and stability.

This reminds us that some of our readers have supposed we alluded to the Ætna of this city in speaking of the solidity of a Fire company of that name. Hitherto we thought it needless to explain that we meant the Ætna of Hartford; but it seems that very intelligent persons will sometimes fail to perceive the most obvious facts. The New York Ætna may be a very safe concern; but we should much rather entrust our house to the care of its Hartford namesake; or that of the Washington, or Security.

The president of the Home Fire wishes very much that he could withdraw his famous letter to the Jews, and bury it in the Stygian lake. When he wrote it he forgot that there are such Israelites in New York as the Solomons; but it was not the first blunder Mr. Martin committed. What grieves him most is to see so many of his best customers giving their fat annual checks to the Security, Hope, and Washington—instead of handing them over to the Home, as formerly. Well, this is rather trying, we must confess; but those who depend on the public for support ought not to make an onslaught on any nationality, or sect as such. Those who give vent to their *little* prejudices in this way must expect to suffer for it sooner or later. There are examples enough of this, but one will suffice; has not the *Sun* been metamorphosed into a *moon*. But, in the case of underwriters, as well as others, much more depends on education than is generally supposed.

Thus, for example, the tutor of Elwood Walter was the late Joseph Walker, than whom a more upright man never affixed his signature to a policy of insurance. It was Mr. Walker who founded the Mercantile Mutual, and vouched for its stability on Mr. Walter's being placed at its head. Walker, who was a strict Quaker, did not love any one the less for his creed, or nationality; nor did he prosper the less through life for making no other distinction between Jew and Gentile than that which he found individuals to make for themselves by their conduct.

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OFFICIAL NOTICE.

STATE OF NEW YORK,
OFFICE OF THE SECRETARY OF STATE,
ALBANY, Aug. 1, 1868.

To the Sheriff of the County of New York:

SIR: Notice is hereby given, that at the General Election to be held in this State on the Tuesday succeeding the first Monday of November next, the following officers are to be elected, to wit:

A Governor, in the place of Reuben E. Fenton.
A Lieutenant-Governor, in the place of Stewart L. Woodford.
A Canal Commissioner, in the place of Robert C. Dorn.
An Inspector of State Prisons in the place of Henry A. Barnum.
A Clerk of the Court of Appeals, in the place of Patrick Henry Jones.
A Justice of the Supreme Court for the First Judicial District, in the place of George G. Barnard.
All whose terms of office will expire on the last day of December next.

Thirty-three Electors of President and Vice-President of the United States.
A Representative in the Forty-first Congress of the United States, for the Fourth Congressional District, composed of the First Ward (including Governor's Island,) Second, Third, Fourth, Fifth, Sixth and Eighth Wards of the City and County of New York.

A Representative in the Forty-first Congress of the United States, for the Fifth Congressional District, composed of the Seventh, Tenth, Thirteenth and Fourteenth Wards of the City and County of New York.

A Representative in the Forty-first Congress of the United States, for the Sixth Congressional District, composed of the Ninth, Fifteenth and Sixteenth Wards of the City and County of New York.

A Representative in the Forty-first Congress of the United States, for the Seventh Congressional District, composed of the Eleventh and Seventeenth Wards of the City and County of New York.

A Representative in the Forty-first Congress of the United States, for the Eighth Congressional District, composed of the Eighteenth, Twentieth, and Twenty-first Wards of the City and County of New York.

A Representative in the Forty-first Congress of the United States, for the Ninth Congressional District, composed of the Twelfth Ward (including Randall's Island and Ward's Island,) Nineteenth Ward, (including Blackwell's Island,) and Twenty-second Ward of the City and County of New York.

COUNTY OFFICERS also to be elected for said County:

Twenty-one Members of Assembly.
A City Judge, in place of Abraham D. Russell.
A Register, in the place of Patrick H. Jones, appointed in the place of Charles G. Halpine, deceased.
Two Supervisors, in the places of William M. Tweed and Sheridan Shook.
All whose terms of office will expire on the last day of December next.

Respectfully yours,

H. A. NELSON,
Secretary of State.

SHERIFF'S OFFICE,
CITY AND COUNTY OF NEW YORK, Aug. 3, 1868.

I hereby certify the above to be a correct copy of the notice this day received by me from the Secretary of State.

JAMES O'BRIEN,
Sheriff of the City and County of New York.

PROPOSALS.

Croton Aqueduct Department.

TO CONTRACTORS.

Separate sealed proposals, each endorsed with the title of the work to which it relates, the name of the bidder, and the date of its presentation, will be received at this office until 11 o'clock, A. M., of Monday, October 5, 1868, for the construction of stone-block pavements in Thirty-fourth street, from Tenth to Eleventh Avenues, and in Perry street, from Bleecker to Fourth streets, and for crosswalks at the intersection of Waverley place and West Tenth street, and across West street at the northerly side of Dey street.

Plans may be seen, and specifications and forms for bids, obtained on application at this office.

THOMAS STEPHENS,
ROBERT L. DARRAGH,
GEORGE G. GREENE,

Croton Aqueduct Board.

NEW YORK, *Sept.* 22, 1868.

GLOBE MUTUAL

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United States Treasury,

NEW YORK, MARCH 16, 1868.

CONVERSION OF SEVEN-THIRTY NOTES.

Holders of Seven-Thirty Notes, falling due June 15 and July 15, 1868, are informed that these Notes cannot be converted into

Five-Twenty Six per cent. Bonds,

Bearing 6 per cent. interest in Gold,

Which interest is payable on the first days of January and July.

The exchange will be made by allowing the interest on the Seven-Thirties up to the day of presentation, and charging the interest which has already accrued on the Bond (since January 1st), at 6 per cent. IN CURRENCY.

Each Seven-Thirty Note must be endorsed by the person presenting it for conversion, whether the Note has been made payable to order or not.

Notes must be forwarded to the undersigned at the expense of the holder, and the Bonds will be returned at the expense of the Department. If REGISTERED Bonds are desired, care must be taken to specify legibly the name to be inserted in such Bond, the denomination required, and the place at which the interest is to be paid.

H. H. VAN DYCK,

Ass't Treasurer of U. S. at New York.

To Contributors.

All articles should be received at least a month before the day of publication. Contributions from all parts are equally welcome; they will be accepted or rejected solely according to their merits or demerits, their suitableness or unsuitableness.

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AGENTS

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